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ABSTRACT

The paper presents a summary of the two Michigan institutes on ways to implement P.L. 94-142 (the Education for All Handicapped Children Act) and the Michigan Special Education Statute for the assessment and identification of learning disabled (LD) students. Participant discussion is organized into the six areas of requirements for the federal definition of LD: (1) determining ability to learn, (2) determining achievement in the seven required areas, (3) determining severe discrepancy, (4) interpreting the exclusionary clause, (5) determining appropriate educational alternatives and if special education services are needed, and (6) required evaluation procedures. Each section considers requirements of the law as well as procedures and enabling activities to implement the law. A checklist presents problem areas to be considered by local district teams in student evaluation and placement decisions. (CL)

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Considerations for Identifying School-Age Children and Youth with Specific Learning Disabilities in Michigan

A Final Institute Report

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CONSIDERATIONS FOR IDENTIFYING
SCHOOL-AGE CHILDREN AND YOUTH WITH
SPECIFIC LEARNING DISABILITIES IN MICHIGAN

A Final Institute Report

Gaylord, Michigan

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Foreward and Acknowledgements

The identification of students with specific learning disabilities in Michigan's schools has been a complicated problem since the late 1960's. The various definitions of learning disabilities that were employed to identify students for special programs and services created confusion across local school districts. Children certified in one district for services could be unrecognized as having a disability in another district. This situation was somewhat alleviated in 1975 when Public Law 94-142 outlined general guidelines for identifying children with specific learning handicaps throughout the United States. Since that time, the parents, educators, administrators and professional organizations in Michigan concerned about the learning disabled have worked to develop a definition of learning disabilities consistent with P.L. 94-142.

After several years of intensive study and pressure, a final version of the definition and appropriate services required was accepted by the Michigan Legislature in August, 1980. The description of learning disabilities in Michigan now closely parallels the Federal concept of specific learning disabilities and allows for greater consistency in certifying and serving school-age children with chronic learning difficulties.

A complete statement of the current definition follows and is the basis of this entire document.

MICHIGAN ADMINISTRATIVE RULES FOR SPECIAL EDUCATION
As Authorized Under Public Act 451

R 340.1713 "Specific learning disability" defined; determination.

Rule 13. (1) "Specific learning disability" means a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain disfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

(2) The individualized educational planning committee may determine that a child has a specific learning disability if the child does not achieve commensurate with his or her age and ability levels in 1 or more of the areas listed in this subrule, when provided with learning experiences appropriate for the child's age and ability levels, and if the multidisciplinary evaluation team finds that a child has a severe discrepancy between achievement and intellectual ability in 1 or more of the following areas:

(a) Oral expression.
(b) Listening comprehension.
(c) Written expression.
(d) Basic reading skill.
(e) Reading comprehension.

(f) Mathematics calculation.
(g) Mathematics reasoning.

(3) The individualized educational planning committee may not identify a child as having a specific learning disability if the severe discrepancy between ability and achievement is primarily the result of any of the following:

(a) A visual, hearing, or motor handicap.
(b) Mental retardation.
(c) Emotional disturbance.
(d) Environmental, cultural, or economic disadvantage.

(4) A determination of impairment shall be based upon a comprehensive evaluation by a multidisciplinary evaluation team which shall include at least both of the following:

(a) The child's regular teacher or, if the child does not have a regular teacher, a regular classroom teacher qualified to teach a child of his or her age or, for a child of less than school age, an individual qualified by the state educational agency to teach a child of his or her age.

(b) At least 1 person qualified to conduct individual diagnostic examinations of children, such as a school psychologist, a teacher of the speech and language impaired, or a teacher consultant.

Acknowledgements

This final report of the Learning Disabilities Institute in Michigan reflects the prolonged commitment of a great many educators. It is not a document prepared by a few writers, but rather a report of the study and deliberations of almost two hundred educators, parents, and cooperating professionals. All those who participated in its development and activities are listed in the Introduction, but several need to be acknowledged for the specific work they contributed to meet the Institute's goals.

Seven major topics were addressed by the Institute; members of the Institute Planning Committee and the Special Education Services Area (MDOE) responsible for these areas were:

ABILITY LEVEL	Gary Hessler and James Weaver
ACHIEVEMENT	Gary Hessler, Dale Kitchen, Katy Moran and Thomas Buescher
SEVERE DISCREPANCY	Gary Hessler
EXCLUSIONARY CLAUSE	Deborah Livingston-White and Dale Kitchen
SPECIAL EDUCATION SERVICES	Robert Luce and Edie Warner
MONITORING AND COMPLIANCE	Ralph Pritchard and Deborah Livingston-White
EVALUATION	William Bibiani and Walter Lesiak

Beyond the development of the Institute's topical areas and materials by Susan Moore and Gary Hessler, several other persons contributed to its on-going operations: Susan DeMeyer, local arrangements, materials and record-keeping; and Audrey Whitaker, typing and printing. Bay-Arenac Intermediate School District served as the fiscal agent for the duration of the Institute.

Introduction

Background of the Michigan Learning Disabilities Institute

The definitions, procedures, enabling activities and checklist presented in this document are a compilation of ideas elicited from nearly two hundred participants at an Institute on Learning Disabilities sponsored by the Michigan Department of Education, Special Education Services Area, and funded by P.L. 91-230 state-initiated funds.

The Institute was divided into two main sessions, one in January 1980 and the second in May 1980. Developmental work preceded both formal sessions and participants were involved in field-testing activities during March and April. One "team" from each of Michigan's Regional Educational Media Center regions was targeted as a participant. Each of the twenty-two teams included: An ISD representative (a person involved in inservice activities), and four members from a local educational agency (LEA). The four LEA members were chosen to reflect a typical multidisciplinary team: A diagnostic person (school psychologist or LD teacher consultant), a special education administrator, and two other persons involved in the determination of learning disabilities at the local level. Beyond these 22 teams from the R.E.M.C. regions, a wide variety of participants were also invited, including representatives from university training programs in Special Education and School Psychology, and five parents of learning disabled students in Michigan. Members of the Institute Planning Committee, the Special Education Services Area and session facilitators raised the total participant number to almost two hundred.

The purpose of the Institute was to provide a forum for persons working in the area of learning disabilities to suggest procedures to effectively implement P.L. 94-142 for the assessment and identification of learning disabled students. In order to operationalize the task, the L.D. federal definition was divided into six areas of requirements: 1) determining ability to learn, 2) determining achievement in the seven required areas, 3) determining severe discrepancy, 4) interpreting the exclusionary clause, 5) determining appropriate educational alternatives and if Special Education Services are needed, and 6) required evaluation procedures.

The Institute format was structured to allow for a general presentation on considerations for each of the six areas. Following each general session, the participants worked in small group sessions to generate ideas and recommendations to be incorporated into procedures. In each of the six areas the requirements of the law and considerations that must be addressed were defined. Procedures and enabling activities were suggested to assist educational diagnosticians in comprehensively and consistently implementing the assessment and identification requirements of the federal L.D. law (P.L. 94-142). These procedures are also consistent with the definition of specific learning disabilities contained in the Michigan Administrative Rules for Special Education (P.A. 451 as revised, 1980).

The information generated by participants at the first Institute session in January was compiled into an initial set of procedures, enabling activities and a Checklist. The twenty-two teams of participants "piloted" these procedures during April and early May at a number of educational planning and placement committee meetings in order to determine their applicability to the process of identifying students with learning disabilities. Each team reviewed their experience with the document and Checklist and sent two representatives to the second Institute session in May.

The May session provided an intensive forum for re-examining the total document and Checklist in light of the field-test results. Each major area of the document was critiqued, and specific changes and editorial preferences were collected for the use of the individual authors. This final document consequently reflects the careful consensus of a large number of persons working in learning disabilities in Michigan.

In summary, the procedures and enabling activities in this document are presented to assist school personnel in Michigan in uniformly interpreting the intent of Michigan's L.D. law as it relates to the identification and assessment of L.D. students. The purpose of the document is to present, in a concise form, the areas of consideration the law requires and suggestions for meeting those requirements. The procedures and enabling activities are extensive and varied to meet the individual differences of students who might be referred. The document incorporates a number of alternative suggestions for use by school personnel. It should not be interpreted that every suggestion must be used for every student. The areas of consideration required by the law are static; however, the procedures and enabling activities include a number of alternatives that could be utilized to assist in completing a comprehensive assessment of students suspected of being handicapped in the area of learning disabilities.

Use of this Document

The purpose of the Michigan Learning Disabilities Institute was to develop a comprehensive and consistent procedure for considering whether school age students should receive special education services for the learning disabled. In the course of its several months of research, analyses and pilot studies, the Institute was able to arrive at a thorough yet operational procedure to support the consideration of learning disabilities services for students in school districts across Michigan. The final outcome of the Institute is embodied in this document--a carefully developed checklist of problem areas to be considered by local districts' IEPC teams as they meet to reach decisions about students suspected of having specific learning disabilities.

The document presented here reflects the deliberate thinking, study and experience of almost two hundred educators, psychologists, parents and administrators in Michigan. The discussion of learning disabilities by this group provides a strong base for examining the particular practices and programs used by local school districts to assess and identify learning disabled students in elementary and secondary programs. It is hoped that this document will become a useful guide for improving the consistent consideration of children for learning disabilities programs. The checklist itself can serve as a careful account of the various problem areas examined by a district

multidisciplinary team and the impact each has had on the final decision. The background discussions in each chapter provide thorough information for understanding the Checklist and the various areas requiring examination by the current state definition of learning disabilities.

A second major use of this document is its applicability to staff development and inservice training in both general education and special education programs. The Institute participants developed some general designs for inservice programs that focused on the major topics considered in the document. Chapter Six contains ideas and outlines for developing inservice activities that will improve the ability of district staff members to identify and plan for students. The various teams of participants who attended the Institute's two sessions would also be ideal personnel to support any inservice programs that focus on this document or the Checklist. Contact persons for these teams are listed below.

Participants

Two groups of participants were involved in the Learning Disabilities Institute. A rather large group of almost two hundred met in January to examine the various considerations about learning disabilities drawn up by the planning committee. Three days of discussion produced the basic Checklist and background document that was to be field-tested. In May, a smaller group of participants (two members from each team) met with the planning committee again to re-examine, edit and approve the basic concepts of the document. All participants are listed below by their team/region or affiliation.

TEAM	REGION	PARTICIPANTS
1	Gogebic-Ontonagon	John Peterson Bill Korpela Denise Wierzbicki
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6	Alpena-Montmorency-Alcona	Gail Authier* Dave Werner-Hillman* Jan Boholtz
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8	Midland	Susan Gates* Jim Wilson* Edra Edwards* Lynn Marvin*
9	Bay-Arenac	Shirley Rappaport* LuAnn Witzke* Pamela Alvey Michael Domsic Joanne Geisinger
10	Calhoun	Jim Vaschow Jan Peters Ron Stinson Elizabeth Hansen Nancy Card
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TEAM	REGION	PARTICIPANTS
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15	Ingham	Helen Romsek* Diane Hodson Lynneah Finkbeiner* Cindy Wakeman* Kim Riley*
16	Genesee Intermediate	Wesley McDaniel Mick McLaughlin Annette Paterson* Carol Page*
17	Jackson	Dorothy Stewart* Chris Reid* Kim VanTassel Paul Stuart Ellen Brandwine
18	Livingston	Elizabeth Anderson Marcia Pullen* Mary Schillinger Paulette Post* Terry Bearden
19	Lenawee	Janet Robinson* Mike Parkis Sylvia Wendrow Jack Louden* Penny Sweet* Diana Joachim
20	Wayne	Barbara Stuart Emmalee Barham Andrea Brown Ann McCarthy Mary L. Starks Thelma Williams

TEAM	REGION	PARTICIPANTS
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22	Eastern Upper Peninsula	Helen Shipmann Margaret Goldthorpe Prudence Taylor Kathy Fossitt Regis McCord

*Indicates attended both Institute sessions.

UNIVERSITY PERSONNEL

Institution	Program	Participant
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Wayne State University	Special Education	Richard Parres
Western Michigan University	Special Education	Dona Gordon Icabone
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Madonna College	Special Education	Connie Tarczon
Oakland University	Special Education	Carol Swift
University of Detroit	Psychology	Martha Johnson

PARENTS

Rosemarie Breczinski
Diane Dingman
Linda McNa,
Jackie Sipple
Sammie Birdsall

Pilot-Data Collection

Following the January sessions, each team was asked to use the newly-developed Checklist in a "pilot test" with five or ten students in their local districts and bring the results and evaluation of their experiences to the second session in May. Despite delays in getting the appropriate materials to each of the teams in the spring, a number of teams were able to provide the Institute with pilot-data results. The teams involved in this phase of the Institute included:

Alpena-Montmorency-Alcona
Bay-Arenac
Berrien
Calhoun
Delta-Schoolcraft
Genesee
Ingham
Jackson
Kalamazoo Valley
Kent
Lenawee
Livingston
Midland
Muskegon
Oakland
Saginaw
Tuscola

The collective experiences of these teams provided a useful, practical basis from which this final document and Checklist has been prepared.

CHAPTER ONE

Ability Level

A Definition

Perhaps the most critical dimension to any assessment component for determining learning disabilities is the establishment of a particular student's ability level. Historically, ability level was viewed solely in terms of a person's intellectual functioning as compared to age-expectancy, the so-called IQ (Intelligence Quotient). The Learning Disabilities Institute has broadened this notion to include more comprehensive factors.

Ability Level is defined as a person's general overall ability to adapt and function in the learning environment. Ability level includes not only the student's cognitive abilities and adaptive behaviors displayed in school, home and social relationships, but also his or her general intellectual ability as measured by individually-administered intelligence (IQ) tests.

Discussion

Because ability level is defined as the level at which one adapts to and functions in the learning environment, it is important to consider as much information as reasonable regarding the student's cognitive and adaptive performances, such as: social competence, verbal thought, non-verbal thought, academic achievement, fund of general knowledge, adaptive behavior, abstract reasoning, and specialized abilities (a complete discussion of these areas in terms of issues and evaluation methods can be found in the third section of this chapter). The primary goal of the multidisciplinary team is to compile as reasonable a representation as possible of a student's level of performance in a wide range of cognitive and adaptive areas and so determine his or her level of ability.

While it is the evaluation team or educational planning committee's responsibility to determine the procedures necessary to assess an individual's ability level, use of an individual intelligence test, administered by a psychologist, is required in all cases where a student is suspected of being learning disabled. Exceptions to this requirement would be cases where it is simply not possible to acquire valid IQ scores, such as students with severe distractibility, hyper-activity or language problems. Exceptions would also be made in situations in which the use of IQ tests would be judged discriminatory. In these cases, reliances on the performance levels obtained from other procedures would be necessary and/or the use of a method of assessment such as the System of Multicultural Pluralistic Assessment (SOMPA), (Mercer and Lewis, 1977) which claims to provide a means of estimating learning potential that may be weighted by sociocultural and health factors.

The rationale for this requirement is that intelligence tests continue to be the best available single indicators of intellectual functioning. They predict academic achievement fairly well, and, for these reasons, have withstood the test of time quite well (Kaufman, 1979).

In using IQ tests, or for that matter any procedure, it is important that one use the most technically adequate devices available. With this in mind, Ysseldyke has reviewed the technical adequacy of many tests (Ysseldyke & Mirkin, 1969). See Appendix for his lists. However, global IQ scores (i.e., Verbal I.Q., Performance IQ, Full Scale IQ) should never be used as the sole indicator of ability level; additional procedures such as intra-test analysis and alternate techniques or procedures (described below) should also be employed. There are a number of characteristics of intelligence tests which speak against their use as an isolated measure of ability level. For example, intelligence tests:

(1) measure previous learning; therefore, they must be considered culture biased and are not always an index of "ability" or "potential" (Kaufman, 1979);

(2) measure samples of behavior which are not exhaustive; thus, IQ scores are not, by themselves, estimates of one's total intellectual functioning (Kaufman, 1979);

(3) measure intellectual processes in a fixed experimental condition, and therefore do not indicate one's abilities when assistance and cues are provided (Kaufman, 1979);

(4) may provide an invalid indication of a learning disabled student's abilities, since the very existence of learning disabilities may preclude the valid measurement of intelligence; e.g., global IQs would not provide a valid indication of ability level in students with discrepancies and variations in their cognitive performance (Danielson & Bauer, 1978);

(5) have not changed with the advent of important advances in psychology; the important contributions of such educational psychologists as Piaget, Gagne or Guilford have not been reflected in intelligence test content or structure (Kaufman, 1979); and

(6) have not incorporated important information provided by neuropsychology; they do not fairly measure the specialized abilities of the cerebral hemispheres (the functions of the right hemisphere are especially under-represented), the integration between them, and the ability to shift from one hemisphere to the other, depending upon the nature of the task (Kaufman, 1979).

A variety of formal and informal procedures may be employed to obtain an indication of a student's cognitive and adaptive performance. These include: adaptive behavior scales; achievement tests; observation techniques; "psychological extras" (e.g., diagnostic testing-teaching strategies); tests of specialized abilities; developmental, social, and educational histories; intelligence tests; social competence; and the like. It is not necessary to use all of the procedures indicated above (in fact, this would be done only infrequently). For example, if a student being evaluated were to receive "average range" rating on his or her individually administered intelligence test, and other formal or informal data corroborated this ability level, there may be no need to utilize further procedures. However, in a circumstance where there is a question

concerning a student's deviance from "average" (particularly below average) more data will likely be required by way of additional procedures to clarify and support a particular ability level. Again, the goal is to acquire a reasonable indication of one's cognitive and adaptive competencies; the point to which this has been accomplished is decided by the multidisciplinary evaluation team and/or the educational planning committee.

The determination of ability level requires that the educational planning committee first review all the information regarding the individual's cognitive functioning, and then arrive at a decision of ability level. This requires more than global IQ scores. It is believed that a pattern of data that supports the highest level of functioning in cognitive and adaptive areas is representative of an individual's ability level, since it is unlikely that anyone will perform higher than his/her "innate potentialities" dictate. Based upon the review and correlation of the information about a student's level of cognitive and adaptive functioning, the planning committee can arrive at a decision regarding the individual's most likely ability level. Ability level is most effectively considered in terms of ranges (See Table 1).

Table 1

Comparable Ranges of Ability Level*

Range	Approximate Percentile Ranges	Approximate Standard Score Ranges**
Superior	98+	130+
Above Average	90 - 97	120 - 129
High Average	75 - 89	110 - 119
Average	25 - 74	90 - 109
Low Average	10 - 24	80 - 89
Below Average (But Not Mentally Impaired)	2 - 9	70 - 79

*Ability level is most appropriately referred to as a range of functioning to which the individual's level of achievement can be compared to ultimately establish the existence of a severe discrepancy.

**These ranges are indicated by standard scores in which average is equal to 100, with a standard deviation of 15. While these standard scores are often used in intelligence tests, they are used here to provide a frame of reference to which one's ability level can be compared. They are not provided to encourage or recommend the use of global IQ scores as the sole and isolated measure of ability level.

In summary then, use of an individually administered intelligence test is required with students suspected of being learning disabled because such tests provide important information regarding one's intellectual functioning. However, the global IQ scores obtained from such instruments are not to be

blindly accepted as a student's ability level without additional corroborative information from other sources. The degree and amount of other information needed to establish one's ability level is made by the multidisciplinary team and/or educational planning committee depending upon the characteristics of the youngster under consideration. It is recommended that the determination of ability is based on procedures which:

1. consider the influences of social, cultural, and educational factors on the performance on tests and subtests;

2. regroup subtests of tests in specified ways to analyze, more carefully, one's intellectual strengths and weaknesses; and

3. support and verify test results through the use of additional formal and informal tests and observation procedures.

Enabling Procedures

This final section of the chapter describes tests and procedures that can be valuable in determining a student's ability level. As previously noted in the discussion, only the use of an individually administered intelligence test is mandatory; use of the other detailed tests and procedures is neither required nor always recommended. It remains the responsibility of the multidisciplinary evaluation team and/or the educational planning committee to decide whether particular diagnostic information is adequate for a valid and reasonable determination of ability level. In addition, the tests and procedures described here vary with respect to the quality and adequacy of their standardization, validity, and reliability. Diagnostic personnel must decide what tests or procedures to employ depending on their goals and the strengths and weaknesses of the various instruments and techniques. The reference book by Salvia and Ysseldyke (1978) can be of valuable assistance in this decision.

The tests and procedures outlined below are presented to provide a repertoire of alternatives diagnostic personnel can use to assist with the determination of ability level. The list is not exhaustive, and personnel may wish to add and supplement the lists depending upon their needs. For reference purposes, the procedures are grouped in the following seven categories:

(1) General Intelligence Tests
(2) Intra-Test Analysis
(3) Achievement Tests
(4) Specialized Abilities
(5) Adaptive Behavior Scales
(6) Psychological Extras
(7) Observation Techniques

1. General Intelligence Tests

Individually administered intelligence tests sample different aspects of mental abilities which are valuable in many types of learning and adaptive situations. They typically sample various aspects of verbal and/or nonverbal

mental functioning. Although it is unlikely that a test discretely measures just verbal or nonverbal cognitive performance, it is convenient, and often beneficial, to consider them as measuring primarily one of those two cognitive abilities. Therefore, a number of individually administered intelligence tests are shown below in Table 2 and are categorized as being primarily verbal and/or nonverbal measures of cognition.

Table 2

Profiles of Individually
Administered Intelligence Tests

Test	Cognitive Ability Primarily Measured*
Columbia Mental Maturity Scale. New York: Harcourt, Brace, Jovanovich, 1972.	Nonverbal
Leiter International Performance Scale. Chicago: Stoelting Co., 1950.	Nonverbal
McCarthy Scales of Children's Abilities. New York: The Psychological Corporation, 1972.	Nonverbal & Verbal
Nebraska Test of Learning Aptitude. Lincoln, NB: Union College Press, 1966.	Nonverbal
Pictorial Test of Intelligence. Boston: Houghton-Mifflin, 1964.	Nonverbal
Raven Progressive Matrices. New York: The Psychological Corporation, 1960, 1965.	Nonverbal
Slosson Intelligence Test. East Aurora, NY: Slosson Educational Publication, 1971.	Verbal
Stanford-Binet Intelligence Scale, Form L-M (Revised). Boston: Houghton-Mifflin Company, 1972	Verbal
Wechsler Adult Intelligence Scale. New York: The Psychological Corporation, 1955.	Nonverbal & Verbal
Wechsler Intelligence Scale for Children-Revised. New York: The Psychological Corporation, 1974.	Nonverbal & Verbal
Wechsler Preschool and Primary Scale of Intelligence. New York: The Psychological Corporation, 1967.	Nonverbal & Verbal
Woodcock-Johnson Psycho-Educational Battery (Tests of Cognitive Ability). Boston: Teaching Resources, 1977	Verbal: Reading, Mathematics, Written Language, & Knowledge Scholastic Aptitudes

*While the cognitive abilities indexed here provide an indication of the primary emphasis of each test, it is unlikely that they measure the abilities in a pure, discrete manner. That is, it is very likely that one employs, to some extent, verbal cognition when performing what appear to be nonverbal tasks; the inverse condition in which nonverbal thinking may be used during verbal tasks is also possible. Therefore, the abilities outlined for each test may be most appropriately viewed as representing the primary emphasis of each test, but not as a discrete measure of only that ability.

2. Intra-Test Analysis

Since many learning disabled students display major discrepancies and variations in their cognitive performance, it is frequently beneficial to analyze a student's performance on an individually administered intelligence test. By carefully analyzing and grouping subtest scores, one often obtains a clearer indication of a learning disabled student's cognitive strengths and weaknesses, and hence a more valid appraisal of his/her ability level. Some of the more frequently used analysis procedures are discussed in this section.

Kaufman's Procedures:

As a result of a factor analytic study of data drawn from the standardization sample of the WISC-R, Kaufman (1979) has been able to identify three major factors assessed in the WISC-R. The factors and their related subtests are shown in Table 3.

Table 3

Kaufman's Regrouping of WISC-R Subtests

Verbal Comprehension	Perceptual Organization	Freedom from Distractibility
Information	Picture Completion	Arithmetic
Similarities	Picture Arrangement	Digit Span
Vocabulary	Block Design	Coding
Comprehension	Object Assembly	
	Mazes	

In some cases, particularly with learning disabled students (Blaha & Vance, 1979), this categorization may characterize the cognitive abilities of students in a more valid manner than the typical Verbal IQ-Performance IQ dichotomy. Sobotka and Black (1978) describe a procedure for rapidly converting the summed factor scores into standard IQ scores. This permits the direct comparison of the factors to each other and to the Verbal, Performance, and Full Scale IQ scores.

The Verbal Comprehension factor would appear to measure one's ability to comprehend, conceptualize, and express verbal information, as well as to verbally retain knowledge (exclusive of arithmetic skills). The Perceptual Organization factor would appear to predominantly measure one's ability to conceptualize and abstract nonverbal information. Thus, these two factors would appear to provide a fairly good representation of one's verbal and nonverbal cognitive performance.

In contrast to the two cognitive factors, the Freedom from Distractibility cluster would appear to primarily be a measure of behavioral attributes. Therefore, it is often felt to measure one's ability to selectively attend and concentrate on tasks. It may also be a measure of test anxiety. However, while

it is quite easy to see how a student may score very poorly on the three subtests constituting this factor because of distractible behavior or test anxiety, it is more difficult to conceive of students performing very well on the three subtests merely by attending in a selective manner. The factor likely also measures some cognitive abilities (such as numerical skills, sequencing skills, memory skills, auditory reorganization abilities, fine motor skills, rapid learning propensities, and the like), that must be considered during the interpretation process.

Kaufman's book also provides invaluable data for interpreting the significance of subtest scatter and verbal-performance IQ discrepancies. He also outlines a process for thoughtfully analyzing the scores obtained from the WISC-R. Essentially, the procedures provide a step-by-step process in which a better understanding of an individual's intellectual processes can be made when his/her scores do not resemble the Verbal and Performance Scales of the WISC-R.

Bannatyne's Categorizations:

Bannatyne (1971) has suggested a recategorization of the subtests from the WISC which is also applicable for use with the WISC-R. It is a slight variant to Kaufman's factor structure which often provides additional information regarding a youngster's cognitive performance. Bannatyne recommends the division of the subtests into the categories shown in Table 4.

Table 4

Bannatyne's Recategorizations of WISC-R Subtests

Verbal Conceptualization Ability	Spatial Ability	Sequencing Ability	Acquired Knowledge
Comprehension	Picture Completion	Arithmetic	Information
Similarities	Block Design	Digit Span	Arithmetic
Vocabulary	Object Assembly	Coding	Vocabulary

He defines the categories as follows:

1. Verbal conceptualizing ability: ability to manipulate and develop concepts; strong reliance on language - cognitive skills.
2. Spatial ability: ability to manipulate objects directly or symbolically in multi-dimensional space, without sequencing.
3. Sequencing ability: ability to retain sequences of auditory and visual stimuli in short term memory storage; attentional processes are also involved.
4. Acquired knowledge: estimate of educational attainment.

Sattler's Analysis:

Sattler (1974, pp. 134-146) has presented a classification scheme of the 1960 Stanford Binet Intelligence Scale which ". . . is offered as a means of ordering data from the Stanford-Binet and as a convenient way of describing what the child has done in categories that have some validity" (p. 134). The scheme was not to be used to determine special abilities, but rather was intended to assist in making interpretations; apparent strengths and weaknesses need to be substantiated by further testing. Sattler's seven categories include:

1. Language. This category includes tests related to maturity of vocabulary (in relation to the prekindergarten level), extent of vocabulary (referring to the number of words the child can define), quality of vocabulary (measured by such tests as abstract words, rhymes, word naming, and definitions), and comprehension of verbal relations.

2. Memory. This category contains meaningful, nonmeaningful, and visual memory tests. The tests are considered to reflect rote auditory memory, ideational memory, and attention span.

3. Conceptual Thinking. This category, while closely associated with language ability, is primarily concerned with abstract thinking. Such functions as generalization, assuming an "as if" attitude, conceptual thinking, and utilizing a categorical attitude are subsumed.

4. Reasoning. This category contains verbal and nonverbal reasoning tests. The verbal absurdity tests are the prototype for the verbal reasoning tests. The pictorial and orientation problems represent a model for the nonverbal reasoning tests. Reasoning includes the perception of logical relations, discrimination ability, and analysis and synthesis. Spatial reasoning may also be measured by the orientation tests.

5. Numerical Reasoning. This category includes tests involving arithmetic reasoning problems. The content is closely related to school learning. Numerical reasoning involves concentration and the ability to generalize from numerical data.

6. Visual-Motor. This category contains tests concerned with manual dexterity, eye-hand coordination, and perception of spatial relations. Constructive visual imagery may be involved in the paper folding test. Nonverbal reasoning ability may be involved in some of the visual-motor tests.

7. Social Intelligence. This category strongly overlaps with the reasoning category, so that consideration should be given to the tests classified in the latter as also reflecting social comprehension. Social intelligence includes social maturity and social judgment. The comprehension and finding reasons tests are seen to reflect social judgment, whereas obeying simple commands, response to pictures, and comparison tests likely reflect social maturity. (p. 135)

In his work, Sattler identified the subtests from the Stanford-Binet which were associated with each category. He also presented a "Binetgram" which provides a graphic, visual picture of an individual's strengths and weaknesses on the

Stanford-Binet. In addition, Sattler described his "standard deviation method" which is used to facilitate analysis of one's performance on the scale. The procedure permits one to use chronological age and/or mental age as a reference point for analyzing a student's pattern of performance.

Valett's Procedure:

Valett (1965) has also presented a procedure on the Stanford-Binet. While generally similar to Sattler's conceptualization, it employs different categorical titles and definitions. The user is provided a profile sheet to visually display a student's strengths and weaknesses in the six categories:

1. General Comprehension - The ability to conceptualize and integrate components into a meaningful total relationship.

2. Visual Motor Ability - The ability to manipulate materials in problem solving situations usually requiring integration of visual and motor skills.

3. Arithmetic Reasoning - The ability to make appropriate numerical associations and deal with mental abstractions in problem solving situations.

4. Memory and Concentration - The ability to attend and retain. Requires motivation and attention and usually measures degree of retention of various test items.

5. Vocabulary and Verbal Fluency - The ability to use words correctly in association with concrete or abstract material; the understanding of words and verbal concepts; the quality and quantity of verbal expression.

6. Judgment and Reasoning - The ability to comprehend and respond appropriately in specific situations requiring discrimination, comparison, and judgment in adaptation.

Guilford's Structure of Intellect Model:

Guilford's Structure of Intellect Model. Guilford (1967) has developed a three-dimensional theoretical model of intelligence that lends itself well for organizing the constructs measured by various cognitive tests. The dimensions of his model are listed below with a definition of each dimension (Kaufman, 1979, pp. 71-72):

1. Operations--intellectual processes.
   a. Cognition (C): Immediate awareness, recognition, or comprehension of stimuli.
   b. Memory (M): Retention of information in the same form in which it was stored.
   c. Evaluation (E): Making judgments about information in terms of a known standard.

d. Convergent Production (N): Responding to stimuli with the unique or "best" answer.

e. Divergent production (D): Responding to stimuli where the emphasis is on variety or quality of response (associated with creativity).

2. Contents--nature of the stimuli.

a. Figural (F): Shapes or concrete objects.

b. Symbolic (S): Numerals, single letters, or any coded symbol.

c. Semantic (M): Words and ideas that convey meaning.

d. Behavioral (B): Primarily nonverbal, involving human interactions with a stress on attitudes, needs, thoughts, and so on.

3. Products--the way the stimuli are organized.

A hierarchy extending from Units (U), where the stimuli are perceived singly, to the increasingly more complex Classes (C), Relations (R), Systems (S), Transformations (T), and Implications (I).

Meeker (1969) has used Guilford's Structure of Intellect (SOI) Model to define and interpret one's performance on the Stanford-Binet Intelligence Scale, Wechsler Intelligence Scale for Children, and Wechsler Preschool and Primary Scale of Intelligence. Her procedure involves the use of cardboard templates which are placed over the protocol sheets to obtain the SOI factors measured by a test. The SOI Institute (214 Main Street, El Segundo, CA 90245) has subsequently developed templates for measuring the SOI factors of the Wechsler Intelligence Scale for Children-Revised, Wechsler Adult Intelligence Scale, Detroit Tests of Learning Aptitudes, Slosson Intelligence Test, Hiskey-Nebraska Test of Learning Aptitude, California Test of Basic Skills, and the Porch Index of Communicative Abilities.

3. Achievement Tests

Although achievement tests have been traditionally thought of by some as being separate from ability tests and/or aptitude or intelligence tests (Cronbach, 1960), there is some evidence to suggest the contrary. Sattler (1974) lists studies that have compared some intelligence tests with achievement tests showing many high correlations. It is believed that by analyzing information from individually administered achievement tests, one can often gain some insight into an individual's ability level. It is common among learning disabled students, for example, that they score within the average range in mathematics, while scoring significantly below age and grade expectancies in reading and written language (e.g., spelling). This would suggest that a student under consideration may have at least average ability, since it is theoretically not possible to score above one's innate potential. This would, of course, need to be substantiated by other information because it is possible that the youngster's ability level may indeed be above his level of measured math skills.

It is also beneficial to consider the information received from achievement tests which provide measures of general information and knowledge (e.g., Peabody Individual Achievement Test, Tests of Achievement from the Woodcock-

Johnson Psycho-Educational Battery). Learning disabled students frequently perform significantly above their academic achievement levels on measures of general knowledge and information. Presumably, this is due to their relatively good cognitive abilities which permit them to learn incidentally good amounts of general information and knowledge, which is in direct contrast to their learning in more formal achievement areas.

Individual achievement tests which may be of value in assessing ability in this way include:

Peabody Individual Achievement Test. Circle Pines, MN: American Guidance Service, 1970.

Wide Range Achievement Test (Revised). Wilmington, DE: Guidance Associates of Delaware, 1976.

Woodcock-Johnson Psycho-Educational Battery (Tests of Achievement). Hingham, MA: Teaching Resources, 1977.

4. Specialized Abilities

Information received from tests which measure more specialized abilities are often of value for determining ability level. Measures of specialized abilities assess only a limited range of tasks (e.g., specific aspects of language, mechanical comprehension, sense of pitch, finger dexterity, etc.). Perceptual-motor accuracy and speed (as opposed to higher level cognitive abilities) is often emphasized in many of the tests of mechanical ability, a fact which should be considered when determining one's cognitive ability level. On the other hand, other measures primarily evaluate cognitive functions.

Typically, tests of specialized abilities use profiles which permit the analysis of both inter- and intra-individual analysis of performance.

Listed below are some measures of specialized abilities that may be considered for use:

Detroit Tests of Learning Aptitudes. Indianapolis, IN: Bobbs-Merrill, 1967.

Differential Aptitude Tests. New York: The Psychological Corporation, 1972-75.

Illinois Test of Psycholinguistic Abilities. Urbana, IL: University of Illinois Press, 1968.

Minnesota Rate of Manipulation Tests. Circle Pines, MN: American Guidance Service, 1946-69.

Minnesota Spatial Relations Test. Circle Pines, MN: American Guidance Service, 1933-79.

Pennsylvania Bi-Manual Workshop. Circle Pines, MN: American Guidance Service, 1943-69.

SRA Test of Mechanical Concepts. Chicago: Science Research Associates, 1976.

Wide Range Intelligence and Personality Test. Wilmington, DE: Guidance Associates of Delaware, 1974.

5. Adaptive Behavior Scales

The definition of ability level used in this report considers both a person's cognitive and adaptive performances. This is consistent with the current American Association of Mental Deficiency definition and the P.L. 94-142 law defining mental retardation. As a result, adaptive behavior is considered important in clarifying a person's ability level and/or intelligence.

Adaptive behavior scales reportedly measure the effectiveness or degree to which an individual meets societal expectations of personal independence and responsibility. Thus, adaptive behavior scales can measure such attributes as self-help skills, communication skills, personal self-direction and motivation, social skills, personal initiative and independence, peer and community relations, personal responsibility, vocational activities, physical development, nonacademic school roles, and the like. Generally, use of these scales with infants and preschool children involves the primary assessment of maturation and development. The evaluation of school-aged children, adolescents, and adults, on the other hand, is more related to assessing societal customs and expectations (Salvia & Ysseldyke, 1978).

Adaptive behavior scales provide an additional perspective from which to view one's ability level, since they present an indication of the effective use one is making of his/her ability level. Care must be taken to assure technical adequacy.

Some of the available adaptive behavior scales include:

AAMD Adaptive Behavior Scale. Washington, DC: American Association on Mental Deficiency, 1969.

AAMD Adaptive Behavior Scale-Public School Version (1974 Revision.) Washington, DC: American Association on Mental Deficiency, 1975.

Balthazar Scales of Adaptive Behavior. Palo Alto, CA: Consulting Psychologists Press.

Cain-Levine Social Competency Scale. Palo Alto, CA: Consulting Psychologists Press, 1963.

SOMPA - Adaptive Behavior Inventory for Children (ABIC). New York: The Psychological Corporation, 1977.

Vineland Social Maturity Scale. Circle Pines, MN: American Guidance Service, 1965. (Originally published, Princeton: Educational Testing Service, 1953).

Developmental, Social, and Educational Histories - Obtaining and analyzing a record of an individual's general development, social, and educational growth will often provide further information about one's cognitive growth and maturation. Such information provides insight from a slightly different perspective than the previously discussed areas.

6. Psychological Extras

The use of "psychological extras" is an effort to search for additional information about an individual student's learning and cognitive abilities beyond that received from standardized ability measures or test scores (Kratochwill, 1977). "Their merit appears to be in deliberate attempts to focus on information-acquisition processes and strategies that provide leads as to how a child could be assisted in classrooms and, if necessary, during remedial sessions. With their emphasis on what works for this child they do offer information beyond many conventional testing practices." (Kratochwill, 1977, p. 307).

Some examples of informal assessment strategies are briefly described below. If more specific information regarding these strategies is desired, one may refer to Kratochwill (1977) and the other primary references cited there.

Learning Potential Assessment - This strategy uses a test-train-retest assessment paradigm to determine the amount of learning necessary to facilitate acquisition of new skills.

Paired-Associate Learning - Paired learning tasks (e.g., noun pairs, picture pairs, number pairs, etc.) are provided to determine the length of time necessary for such learning. This procedure is based on the premise that learning new information reflects a direct measure of learning ability; rather than measuring past learning, as is the case with many tests.

Diagnostic Teaching - A student is taught selected materials in a rather controlled fashion (i.e., visual vs. auditory, structured vs. unstructured, concrete vs. conceptual, etc.) to determine the qualitative manner in which the student learns best. This technique may provide information regarding an individual's level of ability with respect to specific teaching techniques.

7. Observation Techniques

Observing a student in the classroom, or in more unstructured situations such as on the playground or in the gym, often provides invaluable indications of one's ability level. Such observations provide insight with respect to the level of the youngster's cognitive abilities and, perhaps more importantly, how he or she uses them in everyday, practical situations.

When observing a student, it is often beneficial to use time-sampling or behavior-frequency counting methods and use the student's peers as controls since norm-referenced instruments are not readily available in this assessment area. (Particularly useful references include Deno, 1979; Werry and Quay, 1969; Becker, Madsen, Arnold and Thomas, 1967; Goodwin and Coates, 1977).

An observation sequence may be of most value for determining ability when it includes the following dimensions:

Attention Skills - One might consider task orientation variables (i.e., to what is the student attending) and possible causes of inattention, if present.

Verbal Abilities - Note should be made of the youngster's receptive (i.e., listening comprehension) and expressive abilities.

Problem-Solving Strategies - Try to determine the student's approach to tasks, speed of decision making and responses, persistence with (especially somewhat difficult) tasks, task completion, motivation, and the like.

Social Behavior - Observe the youngster's behavior and social strategies with both peers and adults in structured and unstructured situations.

Classroom Variables - Observe the climate of the classroom and whether the teacher is sensitive to the individual needs of students. Also, note the various strategies and adjustments the teacher has tried with the student and their effects.

Using the Checklist

The first part of the Checklist developed by the LD Institute in May provides a broad analysis of the various approaches discussed in this chapter for determining ability level. While the team is not expected to fulfill all aspects of the Checklist in this first area, it is recommended that each of the seven major areas be noted and appropriate data listed when available. The first section is reprinted below for reference use.

Determining Ability Level

Note the tests and procedures used at the IEPC to determine the student's ability level:

1. General Intelligence Tests: Comments:

_____	_____
_____	_____
_____	_____

2. Intra-Test Analysis:	Used	
Kaufman's Procedures	☐	_____
Bannatyne's Categories	☐	_____
Sattler's Analysis	☐	_____
Valett's Procedure	☐	_____
Structure of the Intellect	☐	_____

3. Achievement Tests:

4. Specialized Abilities:

5. Adaptive Behavior:

6. Psychological Extras:

	Used	
Learning Potential Assessment	☐	
Paired-Associate Learning	☐	
Diagnostic Teaching	☐	

7. Observation Techniques:

Developmental/Social History	☐	

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CHAPTER TWO
Areas of Achievement

Background

As noted earlier, the key principle underlying the current definition of learning disabilities is that of a severe discrepancy between a particular student's ability level and his or her achievement in the school setting. The seven achievement areas defined in the federal and state rules include:

(1) Oral expression

(2) Listening comprehension

(3) Basic reading skills

(4) Reading comprehension

(5) Written expression

(6) Mathematics calculation

(7) Mathematics reasoning.

Only one area of achievement need be discrepant with the student's ability in order for a diagnosis of learning disabilities to be further considered. But the seven areas described seldom appear in isolation. Lack of basic reading skills often indicates a similar weakness in reading comprehension. The relationship between calculation and reasoning in mathematics is often an equally serious problem for a learning disabled student. So while the rules indicate that only one area of achievement need be of concern to the assessment team, it is wise to consider as many related areas as possible.

This chapter will discuss each of the seven areas of achievement. For each topic, a definition will be posed and then discussed, and some possible assessment instruments and strategies will be presented for further consideration.

Evaluating Achievement

There are a few general comments regarding the evaluation of achievement that would be valuable to consider before discussing each of the achievement areas. First, the list of tests and evaluation procedures provided here is not exhaustive, and there are other evaluation instruments and procedures not listed here that can be appropriately used to evaluate achievement. Second, the tests and procedures suggested do vary with respect to the adequacy of their standardization, validity, and reliability; diagnostic personnel will need to determine which instruments are sufficient for their use. Reference to Salvia and Ysseldyke's work (1978) would be of assistance in this area.

Both informal and formal instruments have been suggested since each instrument may be of certain value when evaluating achievement. It is recommended, however, that formal evaluation instruments be used as much as possible for the initial determination of learning disabilities since they provide standard scores or percentile ranks that permit the type of comparison between ability level and achievement described in the next chapter on severe discrepancy.

Information regarding achievement level from informal tests and other sources (teacher information, work samples, etc.) might best be viewed as being supplementary, except in those cases where the collection of formal diagnostic data is simply not possible.

The Learning Disabilities Institute participants also recommend that individually administered tests be used to evaluate a student's achievement level. The time factor associated with the use of individually administered tests is offset by the quality of information received from individual testing situations: viz., being able to directly observe the student's performance during testing, and being able to obtain more valid and reliable test data. If group achievement tests are used, it is recommended that they be administered individually or in small groups so that the student's behavior can be more fully observed. It is also important to consider the nature of the group achievement tests to insure that the achievement area under evaluation is actually being assessed! For example, if mathematics is being evaluated, it is important to properly determine the amount of reading required in the test, so that poor reading ability does not unduly influence the mathematics performance of the student.

It is not always essential to formally evaluate all seven areas of achievement. While it is important that the educational planning committee has adequate information on all seven areas, it does not necessarily need formalized test information on each area. If there is adequate teacher information (e.g., work samples and grades) that a student is performing well in all aspects of mathematics, it is not essential that mathematics be evaluated formally. But whenever there is the slightest possibility of chronic difficulty in an achievement area, or reasonable uncertainty regarding achievement in an area, formal testing procedures should be initiated.

The Checklist at the conclusion of this chapter includes the seven achievement areas and requires the IEPC team to identify how each area was assessed. If some areas are informally or formally evaluated, some report should be included to provide a basis for the team's final decisions.

Seven Achievement Areas: Discussion and Assessment

Oral Expression

Definition. Oral expression is the ability to express oneself utilizing vocal speech and language. This includes:

A. Phonology - producing the phonemes (speech sounds) of a language according to the rules which dictate their combination.

B. Morphology - producing the morphemes (smallest meaningful spoken units having a differential function) of a language according to the rules which dictate their combination.

C. Syntax - employing the rules which dictate the sequence, combination, and function of words in an acceptable spoken sentence.

D. Semantics - producing spoken utterances which are relevant and meaningful in a given communication context.

Discussion. Oral expression is the ability to express oneself verbally and includes utilization of the phonological, morphological, syntactical, and semantic aspects of one's own language system. While these four components are listed separately for purposes of explanation, it is important to understand that all four components typically interact in an ongoing, simultaneous manner when normal oral expression is taking place. A separate analysis of the components merely permits a more precise examination and definition of the function "oral expression." Any valid assessment of oral expression should involve utilizable oral expression abilities when the four components are being used concurrently in context.

While many combinations of oral expression problems may occur, the primary characteristic of students exhibiting an expression deficit is their inability to formulate age-appropriate spoken language. In any case, it is highly recommended that an assessment team evaluating a child suspected of having a specific disability in the area of oral expression consult a speech and language therapist for assisting in the diagnosis.

Two additional concerns need to be considered when evaluating the oral expression (as well as the listening comprehension) of a student in school: (1) primary language and dysfunctions in Standard American English; and (2) relationships between language and thinking.

Since language is at least in part environmentally determined, the first concern is related to the issue of language disability in homes where a second language is spoken either exclusively or in addition to Standard American English. This issue is significant because it is clearly inappropriate and detrimental to diagnose a student as having a language dysfunction, unless the student is dysfunctional in his/her primary language or dialect (Salvia & Ysseldyke, 1978). Therefore, to the degree possible, it is essential that students from bilingual homes are evaluated in their primary language, as well as in Standard American English.

It is also important to consider that students who do not have a language dysfunction in their primary language, may have a deficit in Standard American English that can restrict their academic progress. Thus, Standard American English may need to be evaluated and taught, if deficient, not because it is superior, but rather because it provides individuals greater access to our educational and social system (Salvia & Ysseldyke, 1978).

The second issue concerns the confusion of the correspondence between language and intellectual competence (Salvia & Ysseldyke, 1978). There is little agreement among psychologists and linguists about where linguistic competence ends and intellectual competence begins. Therefore, when assessing oral expression and listening comprehension, careful consideration needs to be given to the assumed amount of intellectual competence being assessed and its relationship to verbal competence.

Enabling procedures. When evaluating oral expression, both formal and informal assessment techniques can be valuable. Table 1 lists a number of instruments and techniques that may be used to evaluate various aspects of oral expression. As noted earlier, the technical adequacy and clinical appropriateness of each strategy should be ascertained prior to its use for decision making. The L. D. Institute participants have included information pertaining to the four areas (Phonology, Morphology, Syntax and Semantics) of oral expression and some guidance for age-appropriateness.

Table 1

Characteristic Uses of
Tests for Oral Expression

Tests/Strategies	Grade Appropriateness	Phonology	Morphology	Syntax	Semantics
Bankson Language Screening Test. Baltimore, MD: University Park Press, 1977.	Pre-3		x	x	
Carrow Elicited Language Inventory. Austin, TX: Learning Concepts, 1974.	Pre-3		x	x	
Clinical Evaluation of Language Functions. Columbus, OH: Charles E. Merrill, 1980.	K-12	x	x	x	x
Detroit Tests of Learning Aptitude. Indianapolis, IN: Bobbs-Merrill, 1967.	Pre-12				x
Expressive One-Word Picture Vocabulary Test. Novato, CA: Academic Therapy Publications, 1979.	Pre-6				x
Fisher-Logemann Test of Articulation Competence. Boston, MA: Houghton-Mifflin, 1971.	Pre-12	x			
Fletcher Time-By-Count Test of Diadochokinetic Syllable Rate. Tigard, OR: C. C. Publications, 1978.	1-12	x			
Goldman-Fristoe Test of Articulation. Circle Pines, MN: American Guidance Service, Inc., 1969.	Pre-12	x			
Illinois Test of Psycholinguistic Abilities. Urbana, IL: University of Illinois Press, 1968.			x		x

Table 1 (Continued)

Tests/Strategies	Grade Appropriateness	Phonology	Morphology	Syntax	Semantics
Mean Length of Response - Average number of words used in number of separate utterances.	Pre-6			x	
Mean Length of Utterance - Average number of morphemes used per utterance.	Pre-6		x	x	x
Mean Sentence Length - Average number of words used in a sentence.	Pre-6			x	x
Northwestern Syntax Screening Test. Evanston, IL: Northwestern University Press, 1971.	Pre-6		x	x	x
Oral Language Sentence Imitation Screening Test. Copyright Zachman, Huisingh, Jorgensen and Barrett, 1977.	Pre-3		x	x	x
Photo Articulation Test. Danville, IL: Interstate Publishers, 1969.	Pre-12	x			
Porch Index of Communicative Abilities. Palo Alto, CA: Consulting Psychologists Press, 1974.	7-12		x	x	x
Porch Index of Communicative Abilities in Children. Palo Alto, CA: Consulting Psychologists Press, 1974.	Pre-6		x	x	x
Preschool Language Scale. Columbus, OH: Charles E. Merrill, 1969.	Pre-3		x	x	x
Test of Adolescent Language. Austin, TX: Pro-Ed. 1980.	6-12			x	x
Test of Language Development. Austin, TX: Pro-Ed. 1977.	Pre-6	x	x	x	x
Utah Test of Language Development. Salt Lake City, UT: Communication Research Assoc., 1967.	Pre-6 7-12		x.	x	x

Table 1 (Continued)

Tests/Strategies	Grade Appropriateness	Phonology	Morphology	Syntax	Semantics
Ward-Heasley Evaluation of Expressive Language. North Canton, OH: Stark Publishers, 1976.	3-12		x	x	x
Wechsler's Intelligence Tests. New York: The Psychological Corp., 1955, (Kaufman's Verbal Comprehension and/or Bannatyne's Conceptualization Clusters).	Pre-12				x
Woodcock-Johnson Psycho-Educational Battery. Hingham, MA: Teaching Resources, 1977. (Verbal Ability Cluster).	Pre-12				x

Listening Comprehension

Definition. Listening comprehension is the auditory ability to receive and to understand spoken utterances. Listening comprehension includes:

A. Phonology - auditorily discriminating the phonemes (speech sounds) of a language according to the rules which dictate their combination.

B. Morphology - understanding the morphemes (smallest meaningful spoken units having a differential function) of a language when these are produced by a speaker according to the rules which dictate their combination.

C. Syntax - understanding the sentences of a speaker when these are produced according to an acceptable sequence, combination and function of words.

D. Semantics - understanding any spoken utterance of a talker which is relevant and meaningful to a given communication context.

Discussion. The Institute participants have further defined listening comprehension as the ability to comprehend heard verbal information which includes utilization of the phonological, morphological, syntactical, and semantic aspects of one's own language system.

The user of this report may wish to refer again to the discussion portion of the "Oral Expression" section above for an elaboration of some of the

major issues and considerations related to the evaluation of listening comprehension. Some issues discussed there apply to listening comprehension as well.

The primary characteristic of students exhibiting a listening comprehension deficit is their inability to comprehend the spoken word. The inability to understand words, however, must be differentiated from disorders related to distractibility or auditory memory.

As in assessing oral expression, a separate analysis of the components listed above merely permits a more precise examination and definition of the function of listening comprehension and a valid assessment of listening comprehension should involve the subject's overall utilizable listening comprehension abilities when the four components are being used concurrently in context.

Enabling Procedures. Table 2 below includes characteristic information about a wide variety of tests and strategies that can be used to assess listening comprehension. (Some tests have also been listed in Table 1.) Each has again been profiled according to the four components of the definition.

Table 2

Characteristic Uses of
Tests for Listening Comprehension

Tests/Strategies	Grade Appropriateness	Phonology	Morphology	Syntax	Semantics
Assessment of Children's Language Comprehension. Palo Alto, CA: Consulting Psychologists Press, 1973.	Pre-6		x	x	x
Bankson Language Screening Test. Baltimore: University Park Press, 1977.	Pre-6		x	x	x
Clinical Evaluation of Language Functions. Columbus, OH: Charles E. Merrill, 1980.	K-12	x	x	x	x
Detroit Tests of Learning Aptitude. Indianapolis, IN: Bobbs-Merrill, 1967.	Pre-12				x
Goldman-Fristoe-Woodcock Auditory Skills Tests Battery. Circle Pines, MN: American Guidance Service, 1974.	Pre-12	x			
Illinois Test of Psycholinguistic Abilities. Urbana, IL: University of Illinois Press, 1968.	Pre-6		x	x	x

Table 2 (Continued)

Tests/Strategies	Grade Appropriateness	Phonology	Morphology	Syntax	Semantics
Northwestern Syntax Screening Test. Evanston, IL: Northwestern University Press, 1971.	Pre-7		x	x	x
Peabody Picture Vocabulary Test. Circle Pines, MN: American Guidance Service, 1959.	Pre-12				x
Porch Index of Communicative Abilities. Palo Alto, CA: Consulting Psychologists Press, 1974.	Pre-7		x	x	x
Porch Index of Communicative Abilities in Children. Palo Alto, CA: Consulting Psychologists Press, 1974.	7-12		x	x	x
Preschool Language Scale. Columbus, OH: Charles E. Merrill, 1969.	Pre-3		x	x	x
Screening Test for the Auditory Comprehension of Language. Austin, TX: Learning Concepts, 1975.	Pre-3		x	x	x
Test for the Auditory Comprehension of Language. Austin, TX: Learning Concepts, 1973.	Pre-3		x	x	x
Test of Adolescent Language. Austin, TX: Pro-Ed, 1980.	6-12			x	x
Test of Language Development. Austin, TX: Pro-Ed, 1977.	Pre-6		x	x	x
Token Test for Children. Hingham, MA: Teaching Resources.	Pre-6			x	x
Tree-Bee Test of Auditory Discrimination. Novato, CA: Academic Therapy Publications, 1978.	Pre-6	x			

Table 2 (Continued)

Tests/Strategies	Grade Appropriateness	Phonology	Morphology	Syntax	Semantics
Utah Test of Language Development. Salt Lake City, UT: Communication Research Associates, 1967.	Pre-12				x
Wechsler Intelligence Scale for Children: Revised. New York: Psychological Corp., 1974.	1-10			x	x
Wepman Auditory Discrimination Test. Los Angeles: Western Psychological Services, 1973.	6-12	x			

Basic Reading Skills

Both Basic Reading Skills and its adjoining area, Reading Comprehension, need to be considered as complementary dimensions of achievement. The apparent separation of each here is for diagnostic and explanatory purposes and should not be construed as realistic.

Definition

Basic reading skill is defined as those fundamental reading skills, processes, and strategies required for identifying clues significant for meaning in written text and for attaining comprehension skills. This area includes such items as:

A. Sight word vocabulary: identifying words by sight from their configuration and form, and, when in context, from their semantic and syntactic relationships.

B. Phonic Analysis: identifying words by utilizing sound-symbol relationships and structural analysis.

C. Reading rate: reading speed and fluency that reflects the efficient processing of meaning.

D. Text Analysis: identifying and responding to the clues inherent in the shape, flow and direction of written discourse.

E. Proficiency: combining all elements of basic reading skills and strategies so as to gain the maximum momentum for reading.

Discussion

Basic reading skills are viewed as skills, processes, and strategies fundamental for both leading the reader to meaning and for confirming meaning in the text. Since reading proficiency is rooted in the pursuit of meaning by the reader, it is important to consider the accuracy of basic reading skills primarily in a context meaningful to the reader, and only secondly in isolation. Thus, while it is perhaps of value to assess such skills as sight vocabulary and phonics abilities in isolation, it is most critical to evaluate them in a textual context meaningful to the student. By evaluating them in a context meaningful to the reader, one obtains an indication of the degree to which the student is able to use the basic skills in the total reading act. This is important since, for example, some poor readers have fairly good facility identifying phonics rules in isolation, but demonstrate much difficulty applying them in context. The inverse situation in which the student can employ the rules in context, but not in isolation, is also relatively common with learning disabled students. A similar situation in which students read words by sight in context better than in isolation has also been observed. The recommended assessment of individual basic reading skills should not be interpreted to mean that a student's basic reading skills alone can determine a learning disability. A composite profile of the student's basic reading skills and strategies is needed for the determination of his or her achievement level.

It is important to also consider that there is not always a direct correspondence between basic reading skills and reading comprehension. Frequently, learning disabled students will perform basic reading skill tasks very poorly, while their reading comprehension remains relatively well-developed. In other cases, however, the reverse situation is also observed. As a result, it is important not to predict one type of reading ability from performance on the other, since they would appear to be semi-independent. Regardless of their "connected-ness," both areas need to be evaluated.

Enabling Procedures

In an effort to identify particular norm-referenced and criterion-referenced instruments useful in evaluating basic reading skills, the Institute has compiled a group of possible assessment tools. Table 3 contains some possible tests and notes characteristic grade-ranges and basic skill areas appropriate to each particular strategy.

In addition to these instruments, there are a number of diagnostic procedures that provide good analysis of a reader's basic reading strategies. Foremost among these is the Reading Miscue Inventory, developed by Yetta Goodman and Carolyn Burke (1977) and available from Macmillan and Company, New York.

Table 3

Some Useful Tests for
Evaluating Basic Reading Skills

Test and Publisher	Grades Appropriate	Type of Skill Examined
Basic Educational Skills Inventory: Reading. Torrance, CA: Winch and Associates, 1972-1973.	K-6	Phonic Analysis Sight Vocabulary
Botel Reading Inventory. Chicago, IL: Follett Educational Corp., 1961.	1-12	Sight Vocabulary Phonic Analysis
Criterion Test of Basic Skills. Novato, CA: Academic Therapy Publications, 1976.	1-6	
Diagnostic Reading Scales. Monterey, CA: CTB/McGraw-Hill, 1963.	1-6	Sight Vocabulary Phonic Analysis
Durrell Analysis of Reading Difficulty. New York: Harcourt, Brace, Jovanovich, 1955.	1-6	Sight Vocabulary Phonic Analysis Reading Rate
Gates-MacGinitie Reading Tests. Los Angeles: Western Psychological Services, 1965.	1-12	Reading Rate
Gates-McKillop Reading Diagnostic Tests. New York: Teachers College Press, 1972.	2-6	Sight Vocabulary Phonic Analysis Reading Rate
Gilmore Oral Reading Test. New York: Harcourt, Brace, Jovanovich, 1968.	1-8	Reading Rate
Gray Oral Reading Test. Indianapolis, IN: Bobbs-Merrill, 1963.	1-College	Reading Rate
Peabody Individual Achievement Test. Circle Pines, MN: American Guidance Service, 1970.	1-12	Sight Vocabulary
Silent Reading Diagnostic Tests. Ardmore, PA: Meredith Corporation, 1970.	2-6	Sight Vocabulary Phonic Analysis
Spache Diagnostic Reading Scales. New York: CTB/McGraw-Hill, 1963-1972.	1-12	Sight Vocabulary Phonic Analysis Reading Rate

Table 3 (Continued)

Test and Publisher	Grades Appropriate	Type of Skill Examined
Stanford Diagnostic Reading Test. New York: Harcourt, Brace, Jovanovich, 1977.	1-12	Sight Vocabulary Phonic Analysis Reading Rate
Wide Range Achievement Test (Revised). Wilmington, DE: Guidance Associates of Delaware, 1976.	K-12	Sight Vocabulary
Woodcock-Johnson Psycho-Educational Battery (Tests of Achievement). Hingham, MA: Teaching Resources, 1977.	Preschool-College	Sight Vocabulary Phonic Analysis
Woodcock Reading Mastery Tests. Circle Pines, MN: American Guidance Service, 1973.	1-12	Sight Vocabulary Phonic Analysis

Reading Comprehension

Definition

Whether considered in oral or silent-reading contexts, reading comprehension is defined as the process by which the ideas and meaning intended by the author is understood or confirmed by the reader.

Reading comprehension consists of two levels of performance:

A. Literal: understanding information which appears directly in the written material, e.g., summarizing ideas, answering questions based directly on the content of a written passage, sequencing details and ideas.

B. Inferential: interpreting and generalizing from what has been read; the reader demonstrates the ability to expand upon and generalize from the written material, e.g., noting cause-effect relationships, drawing conclusions, judging accuracy, distinguishing between fact and opinion, making predictions.

Discussion

A reader appears to comprehend written text when he or she can understand, confirm, disprove, summarize and/or infer from the ideas presented by the author. Reading comprehension is an equally important dimension to the profile of a proficient reader suggested by the earlier examination of Basic Reading Skills.

It is important to keep a number of factors in mind when considering how well a particular student comprehends written text. Research has shown that readers comprehend best when these elements are present both in the text and the reading act:

1. degree of compatibility and "match" between the language and vocabulary of the students and that of the author and text;

2. relative clarity and "density" of the concepts being developed in the text by the author;

3. relative predictability ("redundancy") of the syntactic structures and concepts of the text;

4. the specific expectations of the student reader upon first interacting with the text, i.e., to learn, confirm, disprove, summarize, retell or infer from the ideas presented; and

5. the range of options or reading strategies held by the reader which can be flexibly employed depending upon his/her intent and needs.

Enabling Procedures

Evaluation of a particular student's level of reading comprehension, whether at the literal or inferential levels, will be most successful when a variety of passages with significant portions of text are utilized. Whenever possible, the determination of a student's ability to draw meaning from a written passage should occur within lengthier passages from a variety of authors and sources.

Table 4 contains an arbitrary selection of tests and strategies that can be used to determine the reading comprehension ability of students suspected of having a specific learning disability. Each has been profiled as to grade appropriateness and the particular level(s) of comprehension it addresses. Again, diagnostic persons seeking a more comprehensive but not norm-referenced strategy should consider Goodman and Burke's Reading Miscue Inventory.

Table 4

Some Useful Tests for
Evaluating Reading Comprehension

Test and Publisher	Appropriate Grades	Type of Comprehension
Brigance Diagnostic Inventories. North Billerica, MA: Curriculum Associates, 1976, 1977, 1978, 1980.	Preschool-12	Literal
Diagnostic Reading Scales. Monterey, CA: CTB/McGraw-Hill, 1963.	1-6	Literal Inferential

Table 4 (Continued)

Test and Publisher	Appropriate Grades	Type of Comprehension
Durrell Analysis of Reading Difficulty. New York: Harcourt, Brace, Jovanovich, 1955.	1-6	Literal
Gates-MacGinitie Reading Tests. Los Angeles: Western Psychological Services, 1965.	1-12	Literal
Gilmore Oral Reading Test. New York: Harcourt, Brace, Jovanovich, 1968.	1-8	Literal
Gray Oral Reading Test. Indianapolis, IN: Bobbs-Merrill, 1963.	1-College	Literal
Peabody Individual Achievement Test. Circle Pines, MN: American Guidance Service, 1970.	1-12	Literal
Stanford Diagnostic Reading Test. New York: Harcourt, Brace, Jovanovich, 1977.	1-2	Literal Inferential
Test of Adolescent Language. Austin, TX: Pro-Ed, 1980.	6-12	Literal Inferential
Test of Reading Comprehension. Austin, TX: Pro-Ed, 1978.	1-12	Literal Inferential
Woodcock-Johnson Psycho-Educational Battery (Tests of Achievement). Hingham, MA: Teaching Resources, 1977.	Preschool-College	Literal
Woodcock Reading Mastery Tests. Circle Pines, MN: American Guidance Service, 1973.	1-12	Literal

Written Expression

Of the seven achievement areas now identified as being keys to isolating a severe discrepancy in school-age children, written expression presents the largest series of questions. What is meant by written expression in the context of the state and federal definition? How is written expression accurately evaluated in terms of a particular student's language and experience? What strategies and instruments are powerful enough to measure written expression beyond simple "editing skills" like spelling and punctuation? Clearly, it may take a series of contested decisions about students identified as being learning disabled in this specific achievement area before suitable guidelines are developed. For the moment, the following ideas and procedures are suggested to examine a student's performance in written expression.

Definition

Written Expression is the ability to use one's own graphic symbol system to clearly communicate ideas, thoughts and feelings in a meaningful way.

In order to write meaningfully, a person must be competent in at least five basic writing areas:

A. Mechanical - to form letters, words, numerals, and sentences in a legible manner;

B. Productive - to generate enough meaningful sentences to express one's thoughts, feelings, and opinions adequately;

C. Conventional - to write in compliance with accepted standards of style, especially those governing punctuation, capitalization, format, and spelling;

D. Linguistic - to use acceptable English syntactic, morphological, and semantic elements; and

E. Cognitive - to express ideas, opinions, and thoughts in a creative and organized way, including writing at an expected level of abstraction.

Discussion

Writing to express one's ideas, concepts and feelings meaningfully is the result of a carefully articulated developmental process. In the past ten years, researchers like Donald Graves, Janet Emig and James Britton have painstakingly studied how writing appears and grows in children. The results of their work are critical for any diagnostician charged with the task of formally evaluating the written expression of students suspected of being learning disabled. Britton (1970) and Graves' (1978, 1980) work in particular underscore how unreliable a picture one gets of a child's written expression if only standardized achievement instrument subtests are used to evaluate it. For more is happening in the child's use of language and thinking when he or she puts a pencil to paper than such tests have ever conceptualized.

Effective, meaningful writing at any age requires the interaction of each of the five component skills mentioned above. However, it is quite natural for poor performance in several of the areas to be demonstrated by young, developing authors. Some diagnosticians have argued that poor performance in any one component area (such as in handwriting or spelling) would not usually suggest a problem in written expression, unless it could be demonstrated that this single low ability is significantly interfering with the student's ability to express himself in writing. Current research has cast doubt on whether even that condition can be accurately judged. Younger children, for example, invent their own conventions for syntax and spelling; while these appear quite different from adult discourse, they are necessary preconditions to developing more conventional writing forms.

It is essential to keep the developmental nature of writing in mind while examining the products of written expression. The influence of each of the five components changes with learning and maturation. The mechanical and conventional components seem to be of primary instructional focus during the early elementary grades, while the remaining components receive increased attention as the student progresses in school. Similarly, the student's perception of how much another reader brings to the written product shifts from childhood to adolescence. These concerns are seldom addressed by standardized assessments; teachers and diagnostic personnel need to refer to other more subjective models to develop an accurate profile of a student writer's abilities.

Enabling Procedures

Table 5 lists a number of tests and strategies that could be used to begin to evaluate the five various components of written expression. The grades for which the tests are appropriate and the components of meaningful writing evaluated by each are included.

Table 5

Some Useful Tests for
Evaluating Written Expression

Tests and Publishers	Appropriate Grades	Components Evaluated
Brigance Diagnostic Inventories. North Billerica, MA: Curriculum Associates, 1980(B).	Preschool-12	Conventional Mechanical
Larsen-Hammill Test of Written Spelling. Austin, TX: Pro-Ed, 1976 (TWS).	1-8	Conventional (spelling)
Peabody Individual Achievement Test. Circle Pines, MN: American Guidance Service, 1970 (PIAT).	1-12	Conventional (spelling)
Picture Story Language Test. New York: Grune & Stratton, 1965 (PSCT).	2-11	Conventional Productive Cognitive Linguistic
Slingerland Screening Tests for Identifying Children with Specific Language Disability. Cambridge, MA: Educators Publishing Service, 1962-1974 (S).	1-6	Mechanical
Test of Adolescent Language. Austin, TX: Pro-Ed, 1980.	6-12	Linguistic
Test of Written English. Novato, CA: Academic Therapy Publications, 1979 (TWE).	1-6	Conventional Productive Cognitive Linguistic

Table 5 (Continued)

Tests and Publishers	Appropriate Grades	Components Evaluated
*Test of Written Language. Austin, TX: Pro-Ed, 1978 (TOWC).	3-8	Mechanical Conventional Productive Cognitive Linguistic
Wide Range Achievement Test (Revised). Wilmington, DE: Guidance Associates of Delaware, 1976 (WRAT).	K-12	Conventional (spelling)
Woodcock-Johnson Psycho-Educational Battery (Tests of Achievement). Hingham, MA: Teaching Resources, 1977 (W-J).	Preschool-College	Conventional Linguistic

*It is possible for the TOWL to be administered to secondary students. However, this must be done cautiously since validity and reliability information is not available for students older than 14 years, 5 months.

Mathematics Calculation

Both mathematics calculation and the next area to be discussed, mathematical reasoning, have been arbitrarily separated in the definition of learning disabilities being examined here. It is not really possible to separate the calculation aspects from the reasoning aspects of mathematics without agreeing to a fairly "wooden" notion of what mathematics is all about. Mathematics is far more than the stilted memorization of basic "facts" that have no meaning in isolation. For this reason, any examination of mathematics must begin with the assumption that it is a dynamic learning area where discovery, manipulation and understanding are necessary features.

No one teaches mathematics specifically for the purpose of enabling students to pass tests in mathematics! As Biggs and MacLean have argued, three powerful aims are the foundation of mathematics learning: (1) to free students, however young or old, to think for themselves; (2) to provide opportunities for them to discover the order, pattern, and relations which are the very essence of mathematics, not only in the man made world, but in the natural world as well; and (3) to train students in the necessary skills.

Children seem to go through three distinct phases in their mathematical development: the exploration stage, the awareness stage, and the refining and mastering stage. They need time to discover, to explore, to play with physical equipment on their own. If given sufficient time to experiment and to verify their experiments by repetition at this concrete stage, the "awareness" of

pattern and structure becomes intuitively a part of them: in some more than others, of course, but a very necessary skill to develop, no matter to what degree. The "refining and mastery" stage marks the transformation from the concrete and intuitive phases to the abstract form of mathematics: precise language, both written and spoken, writing and solving equations with an understanding and active use of the properties of mathematics, understanding the properties of geometric figures, spatial perceptions, and symmetries. (NAIS, 1976)

The understanding and assessment of a student's mathematical abilities must be in tune with this developmental process. Rigid presumptions about the nature of calculation or reasoning could lead to mis-diagnosis.

Definition

Mathematics calculation includes those processes and strategies by which one shows an understanding of the means to reach an arithmetic computation solution.

Broadly stated, such strategies include the concrete or rote manipulation of objects, sets, numbers and patterns in order to reach an appropriate solution.

Discussion

Calculation abilities in mathematics include not only the computational processes of addition, subtraction, multiplication and division, but also the wider conceptual base of "averaging," "differences," "greater/lesser," and related operations. It includes the identification and understanding of a unique symbol system: +, -, x, ÷, %, >, <, etc. More importantly, it assumes full knowledge of the base 10 system, and the fact that problems can be resolved by one, two or many intermediate steps. The calculations may require such operations as counting or computation, and may involve a variety of content, including whole numbers, fractions, decimals, percents, and the like.

Typically, calculation skills are demonstrated through the use of a pencil and paper format in which tangible assistance (e.g., use of fingers, marks on paper, etc.) can be utilized by the student. Thus, mental abstractions are minimized. In addition, mathematics calculation tasks require only the determination of the correct answer to the computational tasks; no applications or generalizations are required as is the case with mathematics reasoning tasks.[1]

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[1]Learning disabled students often are taught to use calculators to solve computation tasks. It is important to not allow the use of such compensatory aids in the formal evaluation setting.

Enabling Procedures

Table 6 includes some possible assessment instruments that could be used to evaluate the mathematics calculation skills of suspected learning disabled students. One should not overlook the many informal strategies available for examining these skills as well. Work samples in particular provide good evidence of problem areas.

Table 6

Some Useful Tests for
Evaluating Mathematics Calculation

Tests and Publishers	Appropriate Grades
Basic Educational Skills Inventory: Math. Torrance, CA: Winch and Associates, 1972-1973.	K-6
Brigance Diagnostic Inventories. North Billerica, MA: Curriculum Associates, 1976, 1977, 1978, 1980.	Preschool-12
Criterion Test of Basic Skills. Novato, CA: Academic Therapy Publications, 1976.	1-6
Keymath Diagnostic Arithmetic Test. Circle Pines, MN: American Guidance Service, 1971.	K-8
Stanford Diagnostic Mathematics Test. New York: Harcourt, Brace, Jovanovich, 1976.	1-12
Steenburgen Quick Math Screening Test. Novato, CA: Academic Therapy Publications, 1978.	1-6
Wide Range Achievement Test (Revised). Wilmington, DE: Guidance Associates of Delaware, 1976.	K-12
Woodcock-Johnson Psycho-Educational Battery (Tests of Achievement). Hingham, MA: Teaching Resources, 1977.	Preschool-College

Mathematics Reasoning

This final area of achievement is intimately related to calculation and is both numerical and non-numerical.

Definition

Mathematics reasoning is the demonstrated ability to employ mathematical facts, concepts, laws and operations to achieve appropriate solutions to mathematics-rooted problems.

Mathematics reasoning includes several levels of awareness:

A. A Sense of Order and Pattern: being freed from the more magical interpretations of the non-mathematical world.

B. An Understanding of the Nature of the Problem: being aware of how particular problems require an identification of the basic question posed and the inferred solution.

C. Ability to Predict or Fashion Good Solution Strategies: being aware of the feasibility of some strategies for problem-solving and the poor prospects of others for each problem.

D. Persistence and Re-Investigating a Solution: a sense of knowing how or when a particular strategy is moving away from the possible solution and thus pursuing a different approach.

E. Ability to Employ the Most Efficient Strategy: being aware of the most economical way to reach the solution for a problem.

Discussion

It is important that both types of mathematics performance be evaluated, since it is not always possible to predict performance in mathematics calculation from one's performance in mathematics reasoning, and vice versa. More importantly, some students show poor performance in mathematics calculation but do quite well in tasks involving concepts and reasoning strategies.

When performing mathematics reasoning tasks, the student must typically consider mathematical facts and concepts, calculate the solution, and finally apply the solution in an accurate, appropriate manner. The student must therefore isolate the important information needed to solve the task, usually through making inferences or applications to the real world. Often, mathematical reasoning can be evidenced best by a student's ability to apply strategies and concepts to a variety of tasks and problems.

While the student may at times use paper and pencil to arrive at the solution, mental abstraction and generalization is emphasized in the performance of mathematics reasoning tasks. Essentially, higher level abstractions are required, rather than merely concrete mathematical calculation (where only the solution is required). Mathematics reasoning often includes problems which require the use of such processes as mental problem solving, measurement, reading graphs and tables, money and budgeting and related problems.

Enabling Procedures

Table 7 contains several standardized tests that have proven to be useful in evaluating the mathematical reasoning abilities of students. Informal strategies would also be useful in evaluating these abilities in conjunction with calculation skills.

Table 7

Tests Useful in
Evaluating Mathematics Reasoning

Tests and Publishers	Appropriate Grades
Keymath Diagnostic Arithmetic Test. Circle Pines, MN: American Guidance Service, 1971.	K-8
Peabody Individual Achievement Test. Circle Pines, MN: American Guidance Service, 1970.	1-12
Stanford Diagnostic Mathematics Test. New York: Harcourt, Brace, Jovanovich, 1976.	1-12
Woodcock-Johnson Psycho-Educational Battery (Tests of Achievement). Hingham, MA: Teaching Resources, 1977.	Preschool-College

Using the Checklist

The Checklist developed since January by participants in the Learning Disabilities Institute includes a section that focuses on achievement level. The IEPC or multidisciplinary team can use this portion of the Checklist to document the ways that the student's achievement level has been determined and what conclusions have been reached. The full Checklist appears in the Appendix.

Achievement Levels

For each achievement area, indicate whether a full investigation was warranted or not. If an assessment was conducted, indicate the instruments or strategies and provide results. If no further evaluation was done, provide an explanation.

	Was it Suspected?	Results/Comments
I. Oral Expression: (procedures)	☐	
1.		
2.		
3.		
II. Listening Comprehension: (procedures)	☐	
1.		
2.		
3.		
III. Basic Reading Skills: (procedures)	☐	
1.		
2.		
3.		
IV. Reading Comprehension: (procedures)	☐	
1.		
2.		
3.		
V. Written Expression: (procedures)	☐	
1.		
2.		
3.		

	Was it Suspected?	Results/Comments
VI. Mathematics Calculation: (procedures)	☐	
1.		
2.		
3.		
VII. Mathematics Reasoning: (procedures)	☐	
1.		
2.		
3.		

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CHAPTER THREE

Severe Discrepancy

It is not enough to identify whether a difference exists between a student's ability level and his or her performance in the broad achievement areas noted in Chapter Two. In order for a student to be further considered for special education programs and services for the learning disabled, the existence of a severe discrepancy between ability and achievement must be established by the multidisciplinary team. The theoretical basis for describing this severe discrepancy must be rooted outside a strict mathematical formula. Recent court decisions in some states have established clear precedent for the severe discrepancy to be founded on more than simple calculation by formulae involving IQ scores.

This chapter presents a comprehensive discussion of the concept of severe discrepancy developed by the Learning Disabilities Institute and suggested for widespread use in Michigan's schools. The second portion of the discussion identifies some procedures that might be employed to determine if a severe discrepancy is influencing the education of a student.

Definition

Severe discrepancy is indicated by a marked difference between a student's ability level and achievement (in one or more of the seven areas described) that is statistically significant and has educational importance as determined by the individualized educational planning committee (IEPC).

Determining Significance and Importance

By definition, a severe discrepancy is a marked difference between ability and school achievement that cannot be explained by statistical factors and is clinically important. How does one determine whether statistical factors are influencing the appearance of the discrepancy? What constitutes educational importance?

Statistical Factors to be Considered

Two statistical factors are primarily important: the phenomenon called regression toward the mean, and the problem termed test error (primarily a question of test reliability and the reliability of test differences). Both factors require close examination.

Regression Effects

Regression Toward the Mean. The regression effect means that when a dependent variable (such as academic achievement) is predicted from a correlated

measure (such as an Intelligence Quotient or IQ), the predicted value of the dependent variable will, on the average, regress toward the mean (McLeod, 1978, 1979). Due to the phenomenon of regression, a measured IQ (or Mental Age) is not a valid index of educational achievement, unless the student's IQ is 100. Table 1 examines this effect for certain ranges of scores.

Table 1

IQ Range	Mean Educational Quotient
130-139	123.6
120-129	118.4
110-119	109.1
100-109	103.0
90-99	95.1
80-89	89.6
70-79	83.9

This figure, based on simulated data provided by McLeod (1979, p. 325), shows the educational quotient (EQ) that is likely expected for each of the indicated IQ ranges.[1] It is easy to see that in all cases, except for the norm range of 100, the expected Educational Quotient has regressed toward the mean. This certainly suggests that the expected achievement of students with IQ's found to be above average is less than typically expected in terms of their IQ. The matter is further underscored by the fact that students with IQ's below the average range is actually greater than expected in terms of their IQ.

For statistical reasons alone, more students with above average IQ's will be "underachievers" or learning disabled, than students with below average IQ's. Logically then, students with higher IQ's have a much greater chance of being selected as learning disabled, than students with lower IQ's when a formula, such as $\frac{CA \times IQ}{100} - 5 =$ Expected Educational Achievement.

The regression effect, whenever possible, should be considered whenever determining the presence of a severe discrepancy. While it is not possible to provide precise guidelines with respect to the regression phenomenon, it would be beneficial to keep its effects in mind. For example, if an IEPC is comparing the ability and achievement levels of a student with superior cognitive abilities, it is important to know that the achievement levels will not always be exactly consistent with the ability level. Since the cognitive achievement tests used are most likely not perfectly correlated, there will probably be some regression toward the mean by the achievement scores. As a result, it may be unrealistic to expect any student's achievement scores to be at the same level as his or her above average cognitive abilities simply due to statistical factors alone.

[1]While the data shown in Table 1 is simulated for illustrative purposes, this regression effect has been demonstrated empirically by Yule, Rutter, Berger and Thompson, 1974.

A related, though opposite situation may exist for students with below average abilities. Their measured achievement levels may be above their actual below average cognitive abilities. Both situations require some thoughtful judgment on the part of the IEPC.

Test Error Factors

Test Error. All scores obtained from tests are merely estimates of one's "true" score. That is, due to test error, there is always some difference between an individual's "true" score and his/her obtained score. Test error may be systematic (consistent) or random (inconsistent), (Salvia & Ysseldyke, 1978). Such factors as test length, test-retest interval, guessing by examinee, variations within testing situations, and skill of examiner, will affect the reliability of tests and, consequently, the amount of test error.

The degree of deviation due to error for an obtained score is represented by its "standard error of measurement." The standard error of measurement establishes a zone of confidence within which a true score falls 68% (approximately 2/3)of the time. For example, the standard error of measurement for the Verbal IQ of the WISC-R is 4 I.Q. points. Therefore, if one obtains a Verbal IQ of 94, there is a 68% chance that the person's "true" score falls within the IQ range of 90-98.

The problem of test error is compounded when one compares data from two different tests. For example, to determine whether a severe discrepancy exists, the typical procedure is to compare the scores obtained from intelligence tests with scores from achievement tests. But when scores from two different tests are compared, the discrepancy score is usually less reliable than the single scores from either test alone (McLeod, 1978; Salvia & Ysseldyke, 1978). In other words, when scores from tests which are not perfectly correlated are compared, the amount of "test" error accelerates. The data provided by McLeod (1978, p. 14) and presented in Table 2 in slightly modified form clarifies this point.

Table 2

	Observed Scores	"True" Scores	Standard Error of Measurement
IQ	100	91 to 109	9
EQ	90	81 to 99	9
IQ-EQ	10	-3 to +23	13

Table 2 demonstrates that while the standard error of measurement for both the IQ and EQ (achievement) scores is 9 points, the error measure increases to approximately 13 points when the two scores are compared. In this case, it is difficult to determine if a severe discrepancy exists between the student's IQ and EQ since, due to the test error factor, the difference may be either non-existent (-3) or relatively severe (+23).

The IEPC team then is confronted with a problem. When one compares two imperfectly correlated tests to establish whether a severe discrepancy exists, it is often unclear whether any true differences exist even though on the surface there would appear to be a discrepancy. As indicated by Danielson and Bauer (1978), at least one person who responded to the proposed use of a formula to determine learning disabilities felt that " . . . no more than 25% of those identified as learning disabled by the (then proposed federal L.D.) formula would be so identified in an independent replication of the procedure" (p. 167). If this presumption is true, it exemplifies the significant, and often underestimated, effects of test error!

Test error does complicate the decision-making process. The amount of error possible in the difference between the scores from two different tests (A and B for example) is a function of four distinct factors:

1. The reliability of test A
2. The reliability of test B
3. The correlation between test A and test B
4. Differences in group norms

Careful consideration of these four factors will result in increased valid decision making regarding severe discrepancy.

While the problems involved in comparing tests with different normative samples usually cannot be controlled (unless an instrument with a common normative base is used), there are considerations and statistical procedures for considering the other factors. These will be discussed later in this chapter.

Other Considerations

In addition to consideration of the phenomenon of regression to the mean and test error, several other factors need to be considered when establishing whether or not a severe discrepancy exists:

(1) Use of Comparable Derived Scores;

(2) Avoidance of Age-based and Grade-based normative data for comparison;

(3) Flexible Criterion-Levels for "Severe Discrepancy."

Each of these three considerations deserves careful attention.

Comparable types of derived scores must be used to compare ability level and achievement (Hanna, Dyck & Holen, 1979). A sound system of comparing ability level and achievement must be based on equal measurement units (such as standard scores), and not on scores which lack equal intervals, such as age and grade equivalents, ratio IQ's, and percentile ranks (see Hanna, et al, 1979, for an explication of this point). Standard scores with a mean of 100 and standard deviation of 15 are recommended and used in this manual. This type of standard score is suggested because it is the type frequently employed in intelligence tests, and is therefore relatively familiar to many professionals.

However, local personnel may prefer to use other kinds of standard scores (e.g., Z scores, T scores, normal curve equivalents, etc.). This is acceptable since the use of any normalized standard score has the same ultimate effect.

Percentile rank scores can be easily converted into normalized standard scores through use of a single table. Table 3 provides data for such a conversion. For example, assume that a youngster achieved a score at the 17th percentile on a reading test. This would convert to a standard score of 86.

Table 3*

NORMALIZED STANDARD SCORE
CONVERSIONS FROM PERCENTILE RANKS

Percentile Rank	Standard Score	Percentile Rank	Standard Score	Percentile Rank	Standard Score
99	135	66	106	33	93
98	131	65	106	32	93
97	128	64	105	31	93
96	126	63	105	30	92
95	125	62	105	29	92
94	123	61	104	28	91
93	122	60	104	27	91
92	121	59	103	26	90
91	120	58	103	25	90
90	119	57	103	24	89
89	118	56	102	23	89
88	118	55	102	22	88
87	117	54	102	21	88
86	116	53	101	20	87
85	116	52	101	19	87
84	115	51	100	18	86
83	114	50	100	17	86
82	114	49	100	16	85
81	113	48	99	15	84
80	113	47	99	14	84
79	112	46	98	13	83
78	112	45	98	12	82
77	111	44	98	11	82
76	111	43	97	10	81
75	110	42	97	9	80
74	110	41	97	8	79
73	109	40	96	7	78
72	109	39	96	6	77
71	108	38	95	5	75
70	108	37	95	4	74
69	107	36	95	3	72
68	107	35	94	2	69
67	107	34	94	1	65

*Source: Dunn & Markwardt, 1970, p. 95.

Age-based and grade-based normative data should not be compared (Hanna, et al., 1979). That is, intelligence test data which is frequently based on age expectancy, should not be compared to achievement test data that has been derived from comparison to grade expectancy. If a legitimate comparison is to be made, both aptitude and achievement data must be based on the same normative base. Since most IQ tests use age as the normative base, it is recommended that age-based referencing be consistently used in the determination process. Again, it is acceptable to use grade-based normative data, assuming that all test data use this referencing system.

There cannot be a rigid criterion level for the determination of "severe discrepancy." This is necessary since the standard error of the differences between test scores vary with respect to the reliabilities of the tests and procedures used to determine ability level and achievement. To the degree possible, the educational planning committee should try to obtain a fairly accurate idea of whether a discrepancy between ability level and achievement is the result of chance, or a true difference between scores. Table 4 indicates the approximate standard error of difference, expressed in standard score units (average=100, standard deviation=15), when the reliability co-efficient of each measure is known. Thus, if two instruments are used which have reliability co-efficients of .80, the difference between the two would need to be greater than 9.5 standard score points, before the difference between them was greater than the standard error of their difference. On the other hand, if the tests had lower reliability co-efficients (e.g., .70), a difference of nearly 12 standard score points would be necessary to establish a significant difference.

(See Table 4)

When the difference between two compared scores is greater than the standard error of difference, the probability is high that the scores are statistically different. If the difference between two scores exceeds the standard error of difference, there is a high probability that a severe discrepancy exists.

It is not always possible, however, to establish the exact standard error of difference, since it may often be necessary to use tests and/or procedures which lack reliability data. When appropriate reliability data are not available, the following general guidelines may be followed to help establish the probability that a marked discrepancy between ability level and achievement exists:

a. If the difference is less than six (6) standard score points, the probability is low that the scores are significantly different--that is, the difference between the scores is not large enough to be markedly different.

b. If the difference is between approximately six (6) and twelve (12) standard score points, the probability is fair that the scores are significantly different--that is, there may be a significant difference between the scores. Further study and examination of the student's performance would be necessary to determine if a severe discrepancy existed.

Table 4

STANDARD ERROR OF DIFFERENCES IN STANDARD SCORE UNITS*

	.98	.96	.94	.92	.90	.88	.86	.84	.82	.80	.78	.76	.74	.72	.70
.98	3.0	3.8	4.2	4.8	5.3	5.6	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6
.96	3.8	4.2	4.8	5.3	5.6	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7
.94	4.2	4.8	5.3	5.6	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0
.92	4.8	5.3	5.6	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3
.90	5.3	5.6	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5
.88	5.6	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8
.86	6.0	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9
.84	6.3	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2
.82	6.8	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4
.80	7.1	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4	10.7
.78	7.4	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4	10.7	10.8
.76	7.7	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4	10.7	10.8	11.0
.74	8.0	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4	10.7	10.8	11.0	11.3
.72	8.3	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4	10.7	10.8	11.0	11.3	11.4
.70	8.6	8.7	9.0	9.3	9.5	9.8	9.9	10.2	10.4	10.7	10.8	11.0	11.3	11.4	11.6

*Adapted in modified form from: Hanna, Dyck & Holen, 1979a.

c. If the difference is greater than twelve (12) standard score points, the probability is high that the scores are significantly different--that is, there is a high likelihood that there is a significant difference between the scores.

The reader may wish to refer to Hanna, et al., (1979a, 1979b), for a more thorough explanation of the statistical support for the above general guidelines.

Some Limitations

Neither the standard error of difference scores nor the general guidelines should be viewed rigidly or accepted blindly as "criteria" for whether or not a severe discrepancy exists. The two sets of parameters merely indicate the probability that the differences between scores are "real" or due to some change. While the two sets of parameters indicated in Table 4 and by these general guidelines can provide assistance for the determination of severe discrepancy, they have limitations, as well as advantages, that need to be acknowledged and considered.

One advantage of the use of these parameters is that they provide a mechanism by which the amount of test error can to some degree be considered. Since the parameters (especially Table 4) consider the reliabilities of the test instruments being compared, the amount of score difference that is necessary for statistically significant differences is established. A second advantage is that by using the procedures, a team has access to a relatively simple method of determining whether or not two or more scores are significantly different.

The limitations of these procedures are real, however, and need to be carefully considered. It should first be acknowledged that while Table 4 considers the degree to which two scores need to differ to be significantly different (considering the reliabilities of the tests), it does not address all of the sources of error in the determination of the standard error of difference. For example, the table does not consider the variable correlations of the tests being compared or the fact that the two tests being compared have been standardized on different normative samples, during different years, and possibly during different times of the year. Related to this issue is the fact that the different scores from Table 4 vary with respect to the reliabilities of the test instruments used. As an example, an 11.6 point difference is required when the reliabilities of the tests are .70, but only a 3.0 point difference is required when the reliabilities of the tests are .98. As a result, it is possible to obtain a statistically significant difference between scores of two tests with high reliabilities that actually do not have educational importance or significance. And so, while a three to five point difference may in some cases be statistically significant, such a difference would usually not be interpreted as a severe discrepancy with educational significance.

Keeping these limitations in mind, Table 4 and the general guidelines should be viewed only as general parameters which need to be supported by thoughtful judgment by the IEPC. The parameters have been included in this document to provide some specificity and consistency in the determination of severe discrepancy; but the importance of the use of flexible, thoughtful judgment cannot

be overemphasized. Judgment by the IEPC is essential to interpret the educational importance and relevance of the information obtained from Table 4 or the general guidelines. The sole and indiscriminate use of the difference scores in Table 4 or the general guidelines is not recommended by the Institute.

It should also be kept in mind that the establishment of a severe discrepancy, by itself, is not sufficient to certify a student "learning disabled." The major emphasis of this chapter is to suggest procedures for establishing intra-individual analysis of a student's performance in cognitive and achievement areas. Other factors in the L.D. definition must also be considered (e.g., is the problem primarily a problem of sensory impairment, mental retardation, emotional disturbance, environmental, cultural or economic disadvantage; has the youngster had appropriate educational opportunity; are special education programs and services necessary to correct the discrepancy?). Finding out whether there is a severe discrepancy is only one part of the identification process.

Enabling Procedures

With a clear definition of severe discrepancy in mind and a comprehensive understanding of the factors influencing it at hand, how might an IEPC go about the process of determining whether such a difference exists? One possible procedure could include the following steps:

1. The educational planning committee determines the ability level of the student following the procedures outlined in the chapter on Ability Level. As a result of the use of the appropriate procedures, a determination is made of the student's ability level range (e.g., Average, High Average, etc.). The estimated range of ability is also given an approximate standard score; that is, if the student's ability level is felt to be average, his/her standard score would be somewhere in the 90-110 standard score range. The committee may wish to estimate the ability level in a more definitive way, if necessary and possible. They may, for example, wish to determine whether the student's ability is at the lower (90-94), mid (95-105), or higher (106-110) end of the average range. If such a more precise decision is possible, it would, of course, improve the determination decision.

2. The educational planning committee determines the levels of achievement in the specific learning areas defined in the chapter on Achievement Level. If standardized tests which provide percentile ranks are employed, the percentile scores can be easily converted into standard scores. If achievement tests or procedures which do not provide percentile ranks or standard scores are used, the committee will need to estimate the approximate standard score ranges. Again, it is important to be as precise as possible in this estimation procedure, but the use of ranges are best if there is any uncertainty regarding one's achievement level.

3. With both ability level and achievement levels reported as standard scores or standard score ranges, a comparison between the various achievement areas and ability level is made. If the reliabilities of the various tests are known, reference may be made to Table 4, a discrepancy greater than the relevant standard error of difference would be indicative of a severe discrepancy. More frequently, however, the committee may need to use the guidelines outlined earlier as a general guide for the existence of severe discrepancy:

a. Probably no discrepancy: difference of less than 6 standard score points.

b. Possible discrepancy: difference of 6 to 12 standard score points.

c. Likely marked discrepancy: difference of greater than 12 points.

The reader of this report may also wish to refer to Algozzine, Forgnone, Mercer, and Trifiletti(1979), Danielson and Bauer (1978), Hanna et al. (1979a, 1979b), McLeod (1978, 1979), Salvia and Ysseldyke (1978), Shepard (1980), and O'Donnell (1980) for a more thorough discussion of the issues and procedures related to the determination of severe discrepancy.

The Checklist developed by the Institute provides a way for the IEPC or assessment team to document the ways in which the determination regarding severe discrepancy was reached. The pertinent portion is printed below for quick reference.

Severe Discrepancy

Statistical Factors (Quantitative)		Comments
. Use of Standard Error of Difference Tables	☐	_____
. Use of Probability Guidelines	☐	_____
. Others: _____	☐	_____
Clinical Factors (Qualitative)		
(Describe): _____	☐	_____
Other Procedures Used:		
_____	☐	_____

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CHAPTER FOUR

Exclusionary Clause

Legislative Background

Not all children who demonstrate a severe discrepancy between ability and achievement in the seven areas outlined in Chapter Two need to be identified as learning disabled. A large body of research in child development and cognitive psychology (most notably by Jerome Kagan, Michael Cole and Sylvia Scribner) as well as the analysis of the cumulative effects of early intervention programs such as Headstart (Irving Lazar et al., 1978) have shown that ability and performance can be significantly disrupted as well as alleviated by a complex array of social factors. It is quite possible that a student's performance and production in the classroom setting are not equal to his or her "ability level" for reasons beyond the student's immediate learning environment. As a safeguard against the inappropriate placement of some learners into programs primarily designed for learning disabled students, P.L. 94-142 has carefully specified a set of exclusionary conditions. The full impact and complexity of this exclusionary clause will be discussed below.

Section 121.a, 541(b)

The team may not identify a child as having specific learning disability if the severe discrepancy between ability and achievement is primarily the result of:

1. a visual, hearing or motor handicap;
2. mental retardation;
3. emotional disturbance; or
4. environmental, cultural, or economic disadvantage {ed. complications}.

Discussion

The determination of learning disabilities must be established on the basis of the fact that the disorder underlying the severe discrepancy is related to a "constitutional" factor or group of factors within the individual learner, and is not primarily linked to other militating factors, (e.g., sensory or motor handicaps, mental retardation, emotional disturbance, or environmental/cultural/economic complications that have impacted on school performance). This stipulation is not easily met. The interplay of a large number of conditions and effects must first be ascertained and judged as effectively as possible by the multidisciplinary team. What complicates the process is the complex relationship between language, thinking and each learner's immediate culture and environment. At times the task is as difficult (and perhaps as arbitrary) as dividing a pool of water with one's hand; the result is only visible for a moment and then quickly recedes. The history of special education's triumphs

and failures in separating mentally-impaired children from behaviorally and learning-impaired children is an excellent example of the issues the exclusionary clause in learning disabilities must confront and resolve.

Differentiating Factors

While only four general areas have been suggested by the regulations to determine whether or not a student's severe discrepancy is primarily due to a learning disability, numerous factors must ultimately be considered. The Checklist developed by the Institute for examining each suspected learner's history and performance in school has addressed each of these four major areas, outlining particular problems that could warrant closer examination. (See Section IV at the end of this Chapter and the Summary section in the Appendix.) A brief discussion of each area would be useful before implementing the Checklist's suggested procedures.

A word of caution first. The decision as to whether or not an individual student should be excluded from special education services due to the nature of his or her severe discrepancy must be approached with care and sensitivity. Lines of differentiation are seldom clear; professional, multidisciplinary decision-making must be employed at all costs. In every instance, the collection and analysis of all information critical for reaching a sound judgment must be the first priority. Furthermore, any decision should be reached in light of other educational services that are also available, particularly if the discrepancy is due to factors beyond a learning disorder.

Visual, Hearing or Motor Handicap?

The nature of a learning disability is such that it is frequently associated with a neurological dysfunction that has resulted in a partial blockage of some basic psychological processes, particularly the broad category described as "information processing." Since Learning Disabilities has historically identified itself as a handicap area beyond those previously identified (particularly the physical/motor and sensory-deficit areas), it stands to reason that no child with another primary handicap would also be identified as learning disabled.

For this reason, one area that should be investigated in problematic cases is the possible presence of primarily a sensory or motor impairment. The Checklist described later in this Chapter recommends that some comprehensive examinations by appropriate professionals be conducted to determine if a particular child's severe discrepancy might or might not be due to a more persistent handicap in the sensory or motor areas. The guidelines for identifying a child as being handicapped under these two areas have already been outlined in the existing Special Education Rules and Regulations for Michigan. No child should be excluded from learning disabilities services if his or her severe discrepancy is primarily due to a neurological dysfunction that has resulted in inadequate school performance. The concern here is for children whose neuromotor integration is essentially at fault and who require essential services beyond the confines of learning disability programs.

Mental Retardation?

Any student who can be identified as having a mental impairment according to current Michigan guidelines for Special Education services is not eligible for a learning disabilities program. Certainly, the cross-placement of such children into programs for the learning disabled has occurred, but with questionable results. However, P.L. 94-142 has finally provided the authority for diagnosticians and educators to plan significantly different programs for these two categories of learners. One useful reference point for examining this area of the Exclusionary Clause is that the retarded student's performance is more closely in line with his or her assessed ability, while the learning disabled student's is not. As a result, the real discrepancy for the retarded youngster is between his ability level and that of his more normal peers.

The Checklist describes several areas that should be closely examined to determine whether or not a child should be considered for exclusion from learning disability services due to mental retardation. Fortunately, exclusion from one area forces inclusion in another; educational services are still usually guaranteed.

Emotional Disturbance

Historically, one of the most difficult areas to differentially diagnose has been the knot of emotional disturbance and learning disabilities. While each handicap area has always asserted its own criteria for identification, these seem to hold true only at the extremes: schizophrenic children are clearly differentiated from highly adaptive dyslexic children. But as one moves closer and closer to the moderate and mild areas of these two handicaps, lines of difference become quite gray. This problem is particularly aggravated with older students who by adolescence exhibit behaviors and profiles equally valid for both areas. Which handicap came first? Which is the primary problem requiring special attention?

It is clear that some school districts identify such students according to the type of programs that they have available. Such an approach might be realistic but is it legal according to the new regulations for learning disabilities found in P.L. 94-142?

The Institute has recommended (and the effects can be seen in the Checklist) that in the particularly troublesome cases, some effort will have to be put forth to decide whether a student is eligible for services for the emotionally-impaired. Evaluations as well as observations are outlined that can provide the most useful information for reaching an informed decision. Again, the rule of thumb employed is to ascertain whether the severe discrepancy is linked most clearly with external factors rather than internal disruptions of basic psychological processing. There will always be some cases where such a delineation defies both the data and the combined expertise of the multidisciplinary team. In the final outcome, what is most important is the guarantee of appropriate educational and other professional services to address the handicap's effects.

Environmental, Cultural or Economic Disadvantage?

The most troublesome questions regarding the Exclusionary Clause generally arise around this fourth and final area. Identifying to what degree the severe discrepancy is attributed to environmental, cultural or economic complications is not easy. As Kagan and others have noted, such factors seldom do not influence a child's constitutional make-up in the realm of thinking, acting and speaking. The disadvantage or complication seldom (if ever) is solely an external variable by the time a child enters the formal school setting. As a result, only the most limited circumstances can be acknowledged as being primarily responsible for a particular student's severe discrepancy between ability and achievement. Such general circumstances might include areas like erratic school attendance, frequent moving from one home to another, poor educational stimulation in previous school settings, family disorganization, or different cultural values and priorities.

The question of "disadvantage" is clearly a charged, problem-plagued area, prone to wide interpretation by segments of society. Whenever "cultural" or "economic" disadvantage is mentioned in the context of educational or vocational planning, one is prompted to ask "disadvantaged compared to what?" Whether a black or Appalachian student is disadvantaged economically or educationally most often depends on to what, with whom and in which circumstances he or she is compared.

Jane Mercer and her associates (1973, 1977) as well as early researchers in Headstart (Klaus and Gray, 1968) have argued that a child is at an economic, cultural or environmental disadvantage when his or her reasonable expectations and aspirations cannot be achieved. In other words, when the impact of cultural, environmental or financial circumstances is sufficiently intense to impede the prospect of success, then a youngster is clearly at a disadvantage. If a child enters school lacking the necessary behavioral skills to focus, attend and respond due to a chaotic or disorganized family history, he is at a distinct disadvantage for early school success. This is not to argue that such skills are not attainable from that point forward, but it does indicate a risky educational future.

During the past five years, Mercer has attempted to standardize an innovative, multidimensional approach to determining the relative impact of cultural differences on the assessment of a child's ability. (Refer back to Chapter One for additional remarks about this work as it has affected the determination of some youngsters' ability level.) SOMPA (System of Multicultural/Pluralistic Assessment), developed for use with Hispanic, Black and White students in the California Public School System, includes three assessment models: Medical, social and pluralistic. Each concentrates on a limited area of the child and allows for more accurate consideration of the differential effects of both culture and environment on particular students' abilities. The latter two models seem most pertinent for the present discussion.

The second model (social system) is comprised of the Adaptive Behavior Inventory for Children (ABIC). This instrument examines the student's social competence according to the social role that the student is portraying in his or her particular social system. ABIC provides information about the child's social role performance within the family, the community and the actual school

setting. Mercer has shown that when some disadvantaged students are carefully observed within their own milieu, they demonstrate strong social competence not apparent in a more alien or uncomfortable sociocultural context.

The third model (pluralistic assessment) has also proven to be useful for the differential diagnosis of culturally-different children. In this approach, scores on a competently administered WISC-R (in the child's native language when necessary) are mathematically readjusted to take into account such factors as urban acculturation, socioeconomic status, family structure and family size of particular students. The revised score (the student's Estimated Learning Potential) can then be compared to the scores of similar students from similar sociocultural backgrounds. Often, students who had appeared to be less capable on earlier standardized measures have shown greater potential for success. The question then changes from one of "special education" to appropriate alternatives to the pedagogical techniques currently employed.

Ultimately, consideration of whether or not any student should be excluded from special education services for the learning disabled because an identified severe discrepancy is due to environmental or cultural factors rather than "constitutional" ones is a serious matter. What is required in many cases is a careful, thorough and systematic evaluation of a particular student's environmental, cultural and economic situation by appropriate ancillary personnel. The following section addresses particular concerns that would be most fruitful to investigate and evaluate when confronted with this complex situation.

Enabling Activities

How might a multidisciplinary team go about determining whether or not a student referred for consideration should be excluded from LD services and directed to other available programs? The four areas outlined by the law and the discussion above provide broad areas for consideration, but what specific activities might be selected to reach a determination?

One section of the Checklist developed by participants at the Learning Disabilities Institutes in 1980 suggests a number of strategies for examining each of the four areas by which a student could be excluded from services for the Learning Disabled. Each of these areas in the Checklist are outlined below and briefly discussed. It should be kept in mind that not all four areas need to be considered extensively for each student referred. The team should identify which areas might bring the exclusionary factor into play, and thoroughly reach a determination for those particular concerns. Based on comments and discussions at the two Institute sessions, it is most likely that the Emotional Disturbance and Cultural/Environmental areas pose the greatest likelihood for action under the Exclusionary Clause. Each team will have to determine for itself to what degree each of these areas will be examined on a case by case basis.

Sensory Impairments and Motor Impairments

Section Four of the Checklist outlines a number of procedures for determining whether or not a sensory and/or motor impairment is the primary cause of a student's severe discrepancy between ability and achievement:

Sensory Impairments	Considered	Results
.Opthalmalogic/optometric Examination	☐	_____
.Otalaryngalogic Examination	☐	_____
.Audiologic Examination	☐	_____
.Review of School Screening/Medical/ Educational History	☐	_____
Motor Impairments		
.Neurological Assessment	☐	_____
.Orthopedic Examination	☐	_____
.Assessment by Physical Therapist of Perceptual-Motor Functioning	☐	_____
.Review of School Screening/ Medical/Educational History	☐	_____

The comprehensive nature of these procedures will enable a team to rule out the presence of a sensory and/or motor handicap as being a primary cause for learning dysfunction. In most cases, personnel from the Intermediate District would be required to complete the assessment; depending on the student's

home district, appropriate professional services might also be secured from private sources such as clinics, hospitals or appraisal centers.

Mental Retardation

This area of the Checklist includes several available strategies for assuring that students with a clear diagnosis of Mental Retardation (according to Michigan's Special Education Guidelines) are not included in services for the learning disabled:

Mental Retardation	Considered	Results Reported
.Individual Assessment of Cognitive Ability	☐	_____
.Individual Assessment of Adaptive Behavior	☐	_____
.Analysis of School Performance	☐	_____
.Review of Complete Educational and Family History	☐	_____
.Classroom observations by Psychologist, Teacher Consultant or other appropriate professional knowledgeable in suspected handicap area	☐	_____

None of these procedures are really beyond the requirements necessary to consider any child for special education services. The major reason for drawing them into this context is to ascertain whether services for mentally-impaired students would not be more appropriate. Most often, the decision for placement in a program for the mentally-impaired is based on assessment of the student's cognitive and adaptive-behavior functioning. Each aspect outlined here should be considered in the most suspect cases.

Emotional Disturbance

As discussed already, the differential diagnosis and placement of students in programs for emotionally-impaired rather than learning disabled children remains a complex problem. The major recommendation by the Learning Disabilities Institute in this regard focuses on a more complete psycho-social evaluation of students considered for placement in LD programs, encompassing three areas: evaluations, observations, and parent interviews.

Emotional Disturbance	Considered	Results Reported
EVALUATIONS		
.Psychological Assessment	☐	_____
.Projective Psychological Assessment	☐	_____
.Psychiatric Assessment/ Interview	☐	_____
.Complete Social History (Child and Family)	☐	_____
.Educational History (included relationships with peers and teachers)	☐	_____
OBSERVATIONS		
.Data-based observations by psychologist, teacher-consultant, or other appropriate personnel knowledgeable in the suspected handicap area	☐	_____
.Review of Student's daily behavioral log	☐	_____
.Record of individual student and teacher-interactions (secondary students in particular)	☐	_____
.Observations of free-time/ free-play school activities	☐	_____
PARENT INTERVIEWS		
.Home visitation by Social Worker or Teacher Consultant	☐	_____
.Parent Interview conducted by Social Worker or Teacher Consultant	☐	_____

The fact that students with behavioral problems frequently appear in programs for learning disabled students indicates that full consideration is not always given to determine if such placements are appropriate or wise. The activities suggested in the Checklist do not automatically identify students as being emotionally-disturbed rather than learning disabled; they do, however, . . . se the ability of a multidisciplinary team to investigate the possibility that other services might be warranted.

A complicating factor in this whole issue is the circular relationship between learning failure, the acting-out of frustration, and the need for a student to establish confidence about himself and his ability. The research literature draws a straight line between chronic learning failure and behavioral problems in the school and community settings. The concern addressed by this section of the law considers those complications, but seeks to guarantee that children with emotional problems are not provided with seemingly parallel but inappropriate intervention.

Environmental/Cultural/Economic Disadvantage

This fourth and final area for consideration under the Exclusionary Clause poses unique problems for the multidisciplinary team. The nature of the factors to be considered has itself proven to be difficult to assess in any systematic way. The apparent reason for this area's inclusion in the law is to guarantee that students from different, complicating environments are not automatically placed in programs for the learning disabled simply because their achievement lags their assessed ability. It guarantees, for example, that children judged eligible for Title One Remedial Programs are not simply drafted into LD programs. As noted in the discussion earlier, abuses in this area have proven to be a basis for some successful major legal challenges.

The Checklist addresses this area with three major considerations, and offers some basic guidelines for examining each:

Environmental/Cultural/ Economic Complications:	Considered	Results Reported
SCHOOL-RELATED CONSIDERATIONS		
.Determination of attendance patterns for the previous three years at school (e.g., irregular attendance, frequent moves, numerous teachers, etc.)	☐	_____
.Examination of profile of student's school and school district socioeconomic status	☐	_____
FAMILY RELATED CONSIDERATIONS		
.Full family social/history by Social Worker/Staff	☐	_____
.Examination of school adjustment and performance of siblings	☐	_____
.Documentation of significant family events (family crises, divorce, parental or sibling death, etc.)	☐	_____
.Reports from cooperating community service agencies working with the family (DSS, Al-Anon, Big Brothers, etc.)	☐	_____
CULTURAL/ECONOMIC CONSIDERATIONS		
.Analysis and examination of bilingual/bicultural background of family and child	☐	_____
.Utilization of portions of SOMPA to analyze cultural influences/effects	☐	_____
.Assessment of influence of language and dialect on performance in the school setting	☐	_____

The first area, School-Related Considerations, suggests a careful examination of the influence of immediate school environments on the student's performance. If a student has only attended school sporadically for a year or more, or has experienced constant room or teacher changes in his school history, then the severe discrepancy may be far more related to environmental than so-called "constitutional" factors. Of equal concern is the relative ability of the local school to provide the quality of educational programs necessary to stimulate the student's performance commensurate with his or her ability. Lackluster programs promote little growth in achievement.

The second area is probably the most sensitive and demanding for the team to investigate. The nature of the information being sought related to the student's family and background requires essential caution and confidentiality. All information contained in this area must be secured within the guidelines of the Family Rights Privacy Act of 1977. Particular care must be taken to assure that confidential elements are not haphazardly discussed first in the context of an IEPC meeting. Family-related concerns must be discussed with discretion and caution by all members of the team. By the same token, such important information should not be avoided simply because of its complex or sensitive nature.

One area of family-related considerations that bears careful examination is that of significant family events such as death, divorce, or disorganization. Mavis Hetherington (1978) and other cognitive researchers have reported startling rises in the incidence of children developing "LD-like" symptoms in direct reaction to parental separation and divorce. Such children show a clear discrepancy between ability and performance for a period of six to ten months and then re-establish a more expected normal pattern. Events other than divorce could just as easily contribute to the appearance of "pseudo-LD" behavior patterns in the school setting. Another important consideration is that investigated by Tanis Bryan (1978) which indicates that social-communication failure by children outside their family milieu could be responsible for some LD behaviors.

The third area, Cultural/Economic Considerations, is critical for those children from different cultural or economic backgrounds for it measures the effect of those factors on observed school performance. The value a group gives to schooling (particularly schooling outside their own respective culture) might be a powerful influence on school achievement. More importantly, the language factor could account for marked discrepancies between ability and actual learning success for children from bilingual families.

Summary

In order to guarantee that a learner is not excluded from special education services for the learning disabled, the multidisciplinary team must present evidence that his or her severe discrepancy is not primarily related to any one of the four areas discussed above. The Checklist for assessing the applicability of the "Exclusionary Clause" to individual students outlines procedures for examining each of the four areas. It is important to note that in some cases, the determination of whether or not any of the four factors is operating may not be warranted. It is the responsibility of the team to decide which areas indeed warrant further investigation and to facilitate such examinations. In the most difficult cases, it is quite possible that all four areas need to be thoroughly examined.

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CHAPTER FIVE

Special Education Services Needed

Legislative Background

The increased visibility of special education programs and services since 1970 has been a mixed blessing. While such programs have become more accessible in districts statewide, it has become more commonplace for students with problems in behavior and learning to be referred to the special education service areas of local school systems. In the majority of cases, the eventual special education placement has been the best possible provision of educational services. In some instances, however, the placement might have been unnecessary if the student had been afforded more flexible alternatives for learning within the general education programs of the school system.

The previous chapter discussed the reasons why a child suspected of having a specific learning disability might be excluded from special education services for the learning disabled. The multidisciplinary team, however, must also go beyond the conditions of the "exclusionary clause" when seeking suitable educational services for the school-aged child. P.L. 94-142 specifically directs the team to ascertain whether services in special education are necessarily required to bridge the gap of a student's identified severe discrepancy. This provision of the law does not seek to deny services when they are needed, but realistically asks the team (and the school district) to guarantee that appropriate alternative learning experiences have been tried within the student's educational program before any further determination is made about the existence of a specific disability. Ideally, such information or documentation should be presented at the student's IEPC meeting. The final recommendation of the team as to the student's educational placement is significantly strengthened when based on specific documentation about the effectiveness of alternative learning strategies.

The provisions in P.L. 94-142 that focus directly on this charge in the area of learning disabilities include:

I. Section 121a.541(a)(1):

"A team may determine that a child has a specific learning disability if:

(1) the child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed,

(2) when provided with learning experiences appropriate for the child's age and ability levels . . ."

II. Section 121a.543(b)(6):

"The written report must include whether there is a severe discrepancy between achievement and ability which is not correctable without special education and related services . . ."

III. Section 121a.543(b)(6):

"It is necessary to present documentation at the EPPC meeting to support adherence to all aspects of the regulations."

Discussion

In order to determine if special education services are warranted and required for an individual child, the multidisciplinary team should consider three particular issues related to the student's past and present school history:

1. Whether there is a severe discrepancy between ability and achievement when the child is provided with appropriate alternative learning experiences commensurate with age and ability;

2. Whether appropriate alternative learning experiences, including alternative teaching materials and methods, have been attempted with the child prior to the IEPC; and

3. Whether sufficient documentation has been collected for the multidisciplinary team to weigh and determine the need for Special Education and related services.

The critical issue underlying each of these three considerations is the question of individual differences and student achievement. Historically, educators have been compelled to accept a philosophy of individual differences within and between children. No two children ever perform a learning activity with exactly similar styles or results. This is a fact that newly-trained teachers have always had to confront as they embarked on careers in general or special education. But it is also a reality that experienced, competent teachers must accept and manage as well.

Accepting the fact of children's individual differences is not enough. Both proper training and the philosophical acceptance of considerations for children's individual differences need to lead to practical applications in curriculum planning and instructional skills by classroom teachers, teacher consultants and curriculum coordinators. Each should be charged with the responsibility for ensuring that instruction and materials enhance every student's opportunity to learn and achieve at his or her level. When a student does not learn as well as expected, educators need to collaborate to design and implement intervention strategies that will successfully address the individual differences of that learner. These intervention strategies should include the provision of appropriate alternative learning experiences in the general education classroom prior to a referral for special education programs and services.

Appropriate Alternatives

"APPROPRIATE ALTERNATIVES" (learning experiences) are "those instructional alternatives that have been recommended by the child study team (or the equivalent in each individual district), after considering the student's age and ability level. (The process to determine these alternatives is listed under the category of 'enabling activities' in this chapter.)"

Often the question arises as to how many alternatives should be suggested and for what extent of time should they be implemented before being determined to be inappropriate. "Extent" is defined as the length of time that each recommended alternative should be implemented before it is determined to be inappropriate. This determination is made by the child study team (or local equivalent). Likewise, the number of appropriate alternatives to be implemented prior to referral for special education programs and services is also the determination of the child study team.

Considering the Nature of the Discrepancy

In determining whether or not special education services are needed, another factor must be considered. As quoted in the Federal Register (121.a.540 - 121a.543, p. 65084), "It should be pointed out in this document that there are certain degrees of operational validity that will lend themselves to technical limitations between achievement and ability." When making a determination for the need for special education programs or services for a student with high ability who is functioning at grade level, the following must be considered:

1. while a severe discrepancy may exist between achievement and ability, in most situations an adequate program can be developed for the student to meet the requirements of the general education classroom and this programming is the responsibility of general education.

2. in relation to Section 121a.543(b)(6)--the clause "a severe discrepancy which is not correctable without special education and related services," the term "correctable" is interpreted to mean "functioning at grade level"--it is inappropriate to expect a student to function at a level higher than that to which he has been exposed.

Simply stated, students who are identified as having a severe discrepancy between level of ability and achievement but who are functioning at or above their appropriate grade level must be considered outside the parameters set for learning disabled children.

Enabling Activities

How might the team reasonably guarantee that special education services for the learning disabled are required for a particular student? The LD Institute participants developed one possible approach to documenting the need for such services. The activities presented are suggested as possible "pre-referral processes" and seek to determine which appropriate educational alternatives should be tried, and for what duration of time they should be implemented, in the general education classroom (prior to a referral for special education services). When this process is used, a referral for special education services may not be necessary since, with modifications, the student is able to function effectively in the general education classroom. If a special education referral is found to be necessary, appropriate educational alternatives have then previously been attempted and documented. This information can then be presented at the IEPC meeting.

The Pre-Referral Process

The pre-referral process is most effectively conducted by a child study team composed of general and special education teachers and ancillary personnel operating at the local building level. Many districts across the state currently use this type of committee to recommend appropriate learning experiences for a student prior to a special education referral. Depending on the implementing district, these groups are referred to a "child study team," "building screening committee," "local building referral committee" and other such nomenclatures. Regardless of the name, the committees function in a similar manner.

Recommended steps in the pre-referral process are listed below. It is important to remember that information generated during the implementation of this process provides the information to the IEPC committee for them to use to determine if special education services are necessary for an individual student.

The Problem

I. Investigate Problem - this is a reaction to a problem generated by the general education personnel:

A. Identify behaviors - consider the situation and the duration of the problem in:

1. academic setting
2. non-academic setting

B. Identify materials and methods tried - consider the duration of time used.

NOTE: The above information should be documented, including past history, on a specific form devised by the operating district, by the general education teacher prior to the child study meeting.

C. Generate suggestions for appropriate, alternative learning experiences, to be implemented that are commensurate with the student's age and ability levels.

D. Implement the suggested appropriate alternative learning experiences - determine:

1. What was it? (method and material)
2. Duration (when implemented, when terminated)
3. Outcome

NOTE: This information should be documented on a form to be presented at the I.E.P.C. The information can come from the classroom teachers' lesson plans, anecdotal records, log, etc.

E. Review the results of the implementation of the appropriate alternative learning experiences.

F. Determine if a special education referral should be made or if additional appropriate educational experiences should be tried (return to step Ic if additional alternatives should be tried).

NOTE: If a special educational referral is thought necessary, appropriate alternative educational experiences to be presented at the I.E.P.C. have already been implemented and documented, and clear evidence to that effect is on hand.

Clarifying the particular reason for a student's referral for special education services reduces the possibility of a determination being made (or not made) simply because the student is failing in a classroom. More importantly, if the student seems to need educational services outside the realm of special education, then sufficient data has been collected to further the planning effort for the student. The second phase in the process continues this effort.

II. Suggestions for Appropriate Alternative Learning Experiences.

IN THE CLASSROOM

Appropriate alternative learning experiences implemented within the general education classroom:

1. Strategies
   a. teaching approaches
   b. behavior management techniques
   c. modifications of scheduling
   d. other

2. Materials
   a. adapted - these are general course materials that have been adapted for use in the general education classroom (e.g., rewriting material, respacing material, providing worksheets and study guides, etc.)
   b. alternative - these are materials other than those used in the classroom (e.g., a textbook covering the same content but written at a lower reading level, filmstrips, etc.)
   c. others

3. Environment
   a. change of physical environment (e.g., study carrel, etc.)
   b. change in teacher (e.g., team teaching, new classroom)
   c. change in grouping (e.g., 1:1, small group)
   d. other

BEYOND THE CLASSROOM

Appropriate alternative learning experiences (non-special ed.) beyond the classroom.

1. Tutoring (including private tutoring)
2. Remedial Programs
   a. reading
   b. title programs
   c. other

3. Consulting Services
   a. SSW
   b. psychologist
   c. teacher consultant
   d. other

4. Community Services
   a. medical
   b. psychological
   c. social
   d. other

CHAPTER SIX

Planning Inservice Training Activities To Introduce Staff Members to this Document

While this introduction to considerations for identifying children with specific learning disabilities in Michigan's schools provides a firm basis to operationalize IEPC efforts in local school districts, much more training and discussion is needed to guarantee broad success. As a part of the total planning of the Institute on Learning Disabilities in Michigan conducted during 1980, teams of participants prepared some general guidelines for developing inservice activities at the local level. It is not the intent of this document to provide more than a plan for examining essential processes and issues in a series of inservice sessions. The complete responsibility for developing suitable activities rests with the regional Institute participants, their intermediate school district consultants, and interested educators from both regular and special education programs.

The outlines below cover the five major topics that staff members may need more current information about in order to consistently cooperate in developing and approving IEPC decisions and plans for students suspected of having a specific learning disability.

Each outline has been structured to address three critical areas of inservice development: (1) key points and ideas to be developed; (2) useful resource personnel and materials to conduct the session; and (3) a suggested list of participants to be invited for the session. The detailed plan for such inservice activities is left to the needs and resources of the local and intermediate school districts.

Topical Outlines for Inservice Sessions

Ability Level

A. Important Points to be Discussed:

1. Ability Level

   a. complete definition.

   b. complete description of assessment areas, including: adaptive behavior, etc.

2. Evaluation Priority Model

   a. use of general IQ test first to establish parameters for normal/abnormal.

   b. for students found to be less than average, suggested methods to collect corroborative data.

3. Highest Level of Functioning

   a. means to determine the highest level of functioning.

   b. rationale and purpose for including in IEPC deliberations.

4. Intra-Test Analysis

   a. complete discussion of various validated modes.

   b. focus on examples that underscore the need for careful intra-test analyses.

5. Collecting and Using Observation Data

   a. suggested times, procedures and forms.

   b. possible modes and persons for collaborative observations.

B. Resource Persons for the Sessions:

1. Institute representatives
2. School psychologists
3. University personnel expert in tests and measurement
4. Teacher consultant(s)

C. Expected Audience:

1. School psychologists
2. Teacher consultants
3. District IEP administrators
4. Building principals

Achievement Areas

A. Important Points to be Discussed:

1. Presentation of Seven Achievement Areas

   a. break areas into useful components and considerations.

   b. demonstrate how all are inter-related in particular children.

2. Formal vs. Informal Assessment

   a. present reasonable list of formal and informal assessment measures that are available in the district.

   b. discuss when one form of assessment is preferable to the other.

   c. discuss the validity and reliability limitations of the various methods and strategies.

3. General Educator's Role in Assessment

   a. make-up and function of the multidisciplinary team.

   b. rationale for including personnel with specific expertise in the various achievement areas.

B. Resource Persons for the Sessions:

1. Content area/curriculum specialists
2. Speech and Language Specialists
3. Curriculum Resource Consultants
4. Educational Psychologists
5. General Education teachers
6. Teacher Consultants
7. Vocational Education/Career Education personnel

C. Expected Audience:

1. Special educators
2. General educators
3. Local building administrators
4. Parents
5. School Psychologists

Severe Discrepancy

A. Important Points to be Discussed:

1. Severe Discrepancy - What does it mean?

   a. historical notions and formulas.

   b. definition adapted by the Institute explained.

2. Understanding the Limitations of the Concept

   a. what is happening around the state.

   b. what are the problems with current identification practices.

   c. what commitments are required to change our procedures?

3. Statistical Concepts - Quantitative

   a. inform the total group about critical aspects of statistical analyses.

   b. discuss major concepts used by the Institute.

4. Clinical Procedures - Qualitative

   a. articulation of "professional judgment" through clinical observations.

   b. use of diagnostic observations.

5. Guidelines for the Possibility of a Severe Discrepancy

   a. suggested guidelines for posing the existence of a severe discrepancy.

   b. highlighting possible uses by various sample cases.

B. Resource Persons for this Session:

1. Educational Psychologists
2. Intermediate District Consultants
3. University personnel expert in tests and measurement
4. Teacher Consultants familiar with IEPC deliberations

C. Expected Audience:

1. Educational Psychologists
2. Teacher Consultants
3. Assessment Center/Diagnostic Center personnel
4. Regular educators
5. Directors of Special Education
6. Parents, particularly from Parent Advisory Committees

Exclusionary Clause

A. Important Points to be Discussed:

1. The Exclusionary Clause - How Does It Fit In?

   a. Background of the Exclusionary Clause: Problems uncovered by PL 94-142.

   b. Relationship between Severe Discrepancy and the Exclusionary Clause.

2. Cross-Over Handicaps and the Exclusionary Clause

   a. commonalities and differences in emotional disturbance, retardation, and neuromotor handicaps.

   b. assessment and diagnosis factors and the determination of eligibility.

3. The Relationship Between Culture, Economics and Thinking

   a. theoretical/research findings related to the influence of culture and environment on thinking.

b. complications that impact on assessment and diagnosis.

c. prognosis for future outcomes with disadvantaged/culturally different learners.

4. Documenting the Influence of Culture and Environment

a. Planning and guiding a multidisciplinary effort.

b. Data-Gathering: personnel and strategies.

c. Analyzing the information collected in regard to specific influences.

5. Alternative Services

a. Options for students excluded from services for the Learning Disabled.

b. Options for students excluded from services for Special Education.

B. Resource Persons for the Sessions:

(Due to the broad range of considerations here, Resource persons are shown by the topical number: 1, 2, 3, etc.)

Topic 1. Teams from LD Institute

Topic 2. LD Consultants
POHI Consultants
Speech and Language Consultants
Audiologist
Psychologist
Medical Staff

Topic 3. University personnel in developmental psychology, sociology and anthropology
Bilingual/Bicultural Consultant
School Social Worker
Clinical Social Worker
Educational Psychologist

Topic 4. LD Institute Team, with support from community agencies
Psychological Services
District Care-planning program staff

Topic 5. Community agencies
ISD consultants
University Personnel, School of Social Work
District administrators responsible for Alternative and Compensatory Programs

C. Expected Audience:

It is recommended that certain personnel must attend, while others might be given an option to attend:

Must Attend	Could Attend
1. Psychologists	1. LD Teachers
2. Administrators: Special Education General Education Principals Counselors	2. General Education Teachers 3. Parents and representatives from professional organizations 4. Community agencies
3. Supervisors of Special Services	5. Higher Education Faculty 6. Non-Academic/Mainstream Teachers
4. LD Teacher Consultants	
5. Members of Building Multi-disciplinary Team	
6. Social Workers	
7. Secondary Personnel: Vocational Education Skills Center Career Education Bureau of Rehabilitation	

Special Education Services Needed

A. Important Points to be Discussed:

1. Least Restrictive Environment

   a. Historical perspectives on the special education imperative: equal opportunity for optimal growth.

   b. Misconceptions about the Least Restrictive Environment.

   c. Educational placement vs. class placement: cooperative planning.

2. Pre-Referral Documentation

   a. What sort of documentation is useful? Required?

   b. How is the documentation collected?

   c. How is the information organized and presented?

   d. Use of case studies to demonstrate the various options.

3. Appropriate, Alternative Learning Experiences

   a. Why must student needs be matched to the best alternatives?

   b. Thorough discussion of available or possible alternatives.

   c. Developing appropriate alternatives for individual districts.

B. Resource Persons for this Session:

   (Whenever possible, this particular series of sessions should be provided by local district staff who have been involved in mainstreaming efforts; outside resource personnel should be used only for specific reasons.)

   1. ISD Consultants.

   2. Panel of general and special educators involved in mainstreaming.

   3. Diagnostic and Assessment Personnel.

   4. Administrators responsible for LRE programming.

C. Expected Audience:

   1. General Education teachers
   2. General Education administrators
   3. Special Education teachers and teacher consultants
   4. Parents

Appendix A

Learning Disabilities Assessment Checklist

Purpose

The purpose of this Checklist is to facilitate the consistent review and decision-making process of IEPC teams convened to determine school-age students' eligibility for learning disabilities programs and services. It would be most useful to have the completed Checklist available before the IEPC meets; if that is not possible, individual reports can be organized at the meeting and included in the form.

A Summary Sheet is provided at the end of the total Checklist and could be modified to serve as the IEPC's final report and recommendation summary.

The Checklist covers five areas: ability level, achievement areas, severe discrepancy, exclusionary factors, and special education services needed.

Determining Ability Level

Note the tests and procedures used at the IEPC to determine the student's ability level:

1. General Intelligence Tests: Comments:

_____ _____

_____ _____

_____ _____

2. Intra-Test Analysis: Used

Kaufman's Procedures	☐	_____
Bannatyne's Categories	☐	_____
Sattler's Analysis	☐	_____
Valett's Procedure	☐	_____
Structure of the Intellect	☐	_____

3. Achievement Tests:

4. Specialized Abilities:

5. Adaptive Behavior:

6. Psychological Extras:

	Used	
Learning Potential Assessment	☐	
Paired-Associate Learning	☐	
Diagnostic Teaching	☐	

7. Observation Techniques:

Developmental/Social History	☐	

Achievement Levels

For each achievement area, indicate whether a full investigation was warranted or not. If an assessment was conducted, indicate the instruments or strategies and provide results. If no further evaluation was done, provide an explanation.

	Was it Suspected?	Results/Comments
I. Oral Expression: (procedures)	☐	
1.		
2.		
3.		
II. Listening Comprehension: (procedures)	☐	
1.		
2.		
3.		
III. Basic Reading Skills: (procedures)	☐	
1.		
2.		
3.		
IV. Reading Comprehension: (procedures)	☐	
1.		
2.		
3.		
V. Written Expression: (procedures)	☐	
1.		
2.		
3.		
VI. Mathematics Calculation: (procedures)	☐	
1.		
2.		
3.		
VII. Mathematics Reasoning: (procedures)	☐	
1.		
2.		
3.		

Severe Discrepancy

Describe and document how severe discrepancy was determined:

	Used	Comments
Statistical Factors (Quantitative)		
. Use of Standard Error of Difference Tables	☐	_____
. Use of Probability Guidelines	☐	_____
. Others: _____	☐	_____
Clinical Factors (Qualitative) (Describe): _____	☐	_____
Other Procedures Used: _____	☐	_____

Exclusionary Factors

Check if the test, procedure or information was used in consideration of the exclusionary clause:

	Used	Comments
Enabling Procedures to Satisfy Rule:		
Sensory Impairments		
Opthalmalogic/Optometric Examination (Acuity)	☐	
Otolaryngalogic Examination	☐	
Audiologic Examination	☐	
School Screening and Review of Medical/ Educational History	☐	
Motor Impairments		
Neurological Assessment	☐	
Orthopedic/Physical Therapist Assessment of Perceptual-Motor Functioning	☐	
School Screening and Review of Medical and Educational History	☐	
Mental Retardation	☐	
Assessment of Cognitive Ability	☐	
Assessment of Adaptive Behavior	☐	
Classroom Observations by Psychologist or T.C., or appropriate person in area of suspected handicap	☐	
Analysis of Classroom Performance	☐	
Review of Educational History	☐	
Emotional Disturbance	☐	
Evaluations		
Psychological Assessment (cognitive)	☐	

	Used	Comments
Psychological Assessment (projective)	☐	
Psychiatric Assessment	☐	
Complete Social History: Child/Family	☐	
Educational History: Child x Teacher x School	☐	
Observations		
Data-based Classroom Observations by Psychologist, TC or other appropriate personnel	☐	
Teacher Anecdotal History	☐	
Daily Behavioral Log	☐	
Free-time/Free-play Observations	☐	
Home Visitation	☐	
Individual Student and Teacher Interaction (particularly for secondary students with numerous teachers)	☐	
Supplemental Information		
Parent Interview	☐	
Environmental/Cultural/Economic Complication	☐	
School-related Considerations*		
.Determination of attendance patterns for previous three years of school (e.g., irregular attendance, frequent moves, etc.)	☐	
.Profile of school and district socio-economic status	☐	
Family-related Considerations*		
.Social history by Social Worker	☐	

	Used	Comments
.Performance profile of siblings in school	☐	
.Reports from Cooperating Community Service Agencies, such as Protective Services, DSS, Al-Anon, Big-Brothers, etc.	☐	
.Documentation of significant family events (e.g., disruptive family situation, family crisis, death of parent or sibling, etc.)	☐	
Cultural/Economic Considerations*		
.Bilingual/bicultural background	☐	
.Assessment of influence of language and dialect on performance in school setting	☐	

*All information to be secured within confines of Family Rights Privacy Act provisions.

Special Education Services Needed

Provide evidence of what particular alternatives for education were attempted for this student; include the results of each alternative.

	Investigated	Comments
Alternative Learning Strategies:	☐	
Alternative Materials, Methods or Settings:	☐	

Specialized Assistance in the Classroom: ☐

_____ _____

_____ _____

_____ _____

Specialized Programs (Non-Special Education): ☐

_____ _____

_____ _____

_____ _____

CHECKLIST SUMMARY SHEET

STUDENT INFORMATION:

☐ Initial Evaluation ☐ Re-evaluation

Student's Age:_____

Checklist No._____ District:_____

The following areas of the above-named student have been assessed and considered by this multidisciplinary team and have formed the basis for the determination of the student's eligibility for services for the learning disabled.

I. Student's Ability Level is:
(by levels or estimated standard score ranges) _____ (_____ _____)

II. Student's Achievement Level in specified areas (by levels or estimated standard score ranges):

a. Oral Expression _____
b. Listening Comprehension _____
c. Basic Reading Skills _____
d. Reading Comprehension _____
e. Mathematical Calculation _____
f. Mathematical Reasoning _____
g. Written Expression _____

III. Is there evidence of a severe discrepancy? Yes ☐ No ☐

In which specific achievement areas (list): _____

IV. Can this student be excluded from Special Education Services for the Learning Disabled due to:

	Yes	No
(a) sensory or motor handicap	☐	☐
(b) mental retardation	☐	☐
(c) emotional disturbance	☐	☐
(d) environmental, cultural or economic disadvantage	☐	☐

		Yes	No
V.	Has the student been provided with appropriate educational alternatives?	☐	☐
	Have such alternative approaches been documented and included in this report?	☐	☐
	Are special education services now required for this student?	☐	☐

Comments: _____

_____

_____

VI.	A classroom observation was completed and information was shared at the EPPC.	☐	☐

VII. Based on the above data, this student is

☐ determined as being learning disabled.

☐ determined as being not learning disabled.

Appendix B

TECHNICAL ADEQUACY OF TEST INSTRUMENTS
USED IN SPECIAL EDUCATION*

(Partial Listing)

Test	Norms	Reliability	Validity
Intelligence Tests			
Arthur Adaptation of the Leiter International Performance Scale	-	-	-
Cognitive Abilities Test	-	+	+
Culture Fair Intelligence Test	-	-	+
Full Range Picture Vocabulary Test	-	-	-
Goodenough-Harris Drawing Test	-	-	-
Henmon-Nelson Tests of Mental Ability	-	-	-
Kuhlmann-Anderson Intelligence Tests	+	+	+
McCarthy Scales of Children's Abilities	+	+	+
Otis-Lennon Mental Ability Test	+	+	+
Primary Mental Abilities Test	-	+	+
Quick Test	-	-	-
Slosson Intelligence Test	-	-	-
Stanford Binet Intelligence Scale	+	-	-
Wechsler Adult Intelligence Scale	+	+	+
Wechsler Intelligence Scale for Children-Revised	+	+	+
Woodcock-Johnson Psycho-Educational Battery	+	+	+
Achievement Tests			
Brigance Inventory of Basic Skills	-	-	-
California Achievement Test	-	+	-
California Test of Basic Skills	**	**	**
Diagnosis: An Instructional Aid in Math	CR	CR	CR
Diagnostic Reading Scales	-	-	-
Durrell Analyses of Reading Difficulty	-	-	-
Gates-MacGinitie Reading Tests	-	+	-
Gates-McKillop Reading Diagnostic Tests	-	-	-

*Sources: Salvia, J., & Ysseldyke, J. E. Assessment in special and remedial education. Boston: Houghton Mifflin, 1978.

Thurlow, M. D., & Ysseldyke, J. E. Current assessment and decision-making practices in model LD programs. Learning Disability Quarterly, 1979, 2(4), 15-24.

Ysseldyke, J. E., Algozzine, B., Regan, R., & Potter, M. Technical adequacy of tests used by professionals in simulated decision making. Minneapolis: University of Minnesota, Institute for Research on Learning Disabilities, 1979.

Test	Norms	Reliability	Validity
Gilmore Oral Reading Test	-	-	-
Gray Oral Reading Test	-	-	-
Iowa Test of Basic Skills	+	-	-
Key Math Diagnostic Arithmetic Test	-	-	-
Metropolitan Achievement Test	-	+	-
Peabody Individual Achievement Tests	+	+	+
Silent Reading Diagnostic Tests	-	+	+
Spache Diagnostic Reading Scales	-	-	-
SRA Achievement	+	-	-
Stanford Achievement Test	+	+	+
Stanford Diagnostic Mathematics Test	+	+	+
Stanford Diagnostic Reading Test	+	+	+
Wide Range Achievement Test	-	+	-
Woodcock-Johnson Psycho-Educational Battery	+	+	+
Woodcock Reading Mastery Tests	+	+	+
Perceptual-Motor Tests			
Bender Visual Motor Gestalt	-	-	-
Developmental Test of Visual-Motor Integration	-	-	-
Developmental Test of Visual Perception	-	-	-
Memory for Designs Test	-	-	-
Motor Free Visual Perception Test	-	-	-
Purdue Perceptual-Motor Survey	-	-	-
Wepman Auditory Discrimination Test	-	-	-
Behavioral Recordings			
Frequency Counting or Event Recordings	SC	SC	SC
Interval or Time Samplings	SC	SC	SC
Permanent Products	SC	SC	SC
Peterson-Quay Behavior Problem Checklist	-	-	-
Personality Tests			
Piers-Harris Self-Concept Scale	-	-	-
Rorschach-Inkblot Technique	-	-	-
School Apperception Method	-	-	-
Thematic Apperception Test	-	-	-
Adaptive Behavior Scales			
AAMD Adaptive Behavior Scale	-	-	-
AAMD Adaptive Behavior Scale (School Version)	+	-	-
Vineland Social Maturity Scale	-	-	-
Language Tests			
Carrow Elicited Language Inventory	-	-	-
Detroit Tests of Learning Aptitude	-	-	-

Test	Norms	Reliability	Validity
Goldman-Fristoe Test of Articulation	CR	+	+
Illinois Test of Psycholinguistic Abilities	-	-	-
Northwestern Syntax Screening Test	-	-	-
Peabody Picture Vocabulary Test	-	+	+
Test for Auditory Comprehension	-	-	-
Utah Test of Language Development	-	-	-

+ = technically adequate

- = technically inadequate

** = manual not available

CR = criterion referenced

SC = special condition

Notes . . .